DOCUMENT RESUME

ED 065 486 24 SP 005 813

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TITLE	How to Conduct a Workshop.
INSTITUTION	Eastern Regional Inst. for Education, Syracuse, N.Y.
SPONS AGENCY	National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
BUREAU NO	BR-6-2875
PUB DATE	[70]
NOTE	210p.
EDRS PRICE	MF-$0.65 HC-$9.87
DESCRIPTORS	*Charts; Educational Philosophy; *Flow Charts; *Inservice Teacher Education; Teacher Education; *Teacher Workshops; *Workshops
IDENTIFIERS	Eastern Regional Institute for Education; ERIE

ABSTRACT

After 3 years of workshop experience, the Eastern Regional Institute for Education (ERIE) has produced this document describing a rationale for workshops which places emphasis on participant involvement and on the planning, conducting and evaluation of a workshop for groups of participants ranging in number from 15 to 500 persons. Major sections of this volume deal with the rationale for inservice education, a working philosophy for workshops, and procedures for organizing and managing a workshop. The first section, rationale for in-service education explains the importance of in-service training and the need for workshops. The philosophy of workshops describes the applications of social systems to workshop planning and execution, the methods of involving participants in workshop activities, and the importance of involving administrative personnel in workshop activities. The third section, flowcharts, indicated procedures for organizing a workshop. This section describes the use of flowcharts and the construction of a chronological and timetable of tasks to be performed in order to plan and execute a workshop. Additional sections list the literature cited and suggested readings. A separate volume of flowcharts is designed for use with the major narrative section on procedures for organizing and managing a workshop. A 23-item bibliography is included. (Related document is SP 005 798.) (MJM)

ED 062486

NCERD BR 6-2875
PA 24

AUG 1972

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HOW TO CONDUCT A WORKSHOP

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Published by the Eastern Regional Institute for Education, a private non-profit corporation supported in part as a regional educational laboratory by funds from the United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred.

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INTRODUCTION

This document evolved from three years' workshop experience by the Eastern Regional Institute for Education (ERIE). Since ERIE's workshops were characterized by careful planning and execution, this publication is intended to provide documentation useful to anyone planning to conduct a workshop. Some workshops are considered large, others small. The authors believe that the same general elements of planning apply to any workshop format. In some workshops the time program must be compressed into a week or so of intensive activity at a single site; in others, activities may be scheduled once a week over a period of several weeks or months.

The document is presented in two separate volumes. This narrative volume includes major sections dealing with the rationale for inservice education, a working philosophy for workshops, and procedures for organizing and managing a workshop. Additional sections list the literature cited and some suggested readings. A separate volume of flowcharts is designed for use with the major narrative section on procedures for organizing and managing a workshop. Separate flowcharts correspond to the indexed sections of this volume.

Since it provides a complete documentation of the planning and execution of a workshop, this volume probably contains more information than many planners will require. The reader will discover that the sample materials included* were used in the ERIE workshops designed to prepare personnel for the teaching of Science--A Process Approach, an innovative elementary curriculum. This conforms to the authors' intent that examples cited should be authentic, based upon actual experience. It is left to the reader to select and adapt the guidelines and materials to his own interests, a task which should not prove to be overly difficult.

A salient organizational feature of the contents of "How to Conduct a Workshop" is found in the statement of objectives, in behavioral terms, for each chapter or section. The statement of objectives for the entire document follows:

> Through the use of this document, the reader should be able to
>
> 1. DESCRIBE a rationale for workshops which place great emphasis on participant involvement, and
> 2. PLAN, CONDUCT, and EVALUATE a workshop for groups of participants ranging in number from 15 to 500 persons.

In keeping with this behavioral approach, each major section in the table of contents includes performance objectives for the reader. These performance objectives are intended to make the contents more practical to the reader. Material familiar to the reader, as indicated in the objectives, may be skipped over. This would apply also to sections which are obviously inappropriate to the needs involved in tentative workshop plans. However, as a practical suggestion, the authors strongly urge the reading of all sections which appear totally unfamiliar to the reader, regardless of preliminary indications to the contrary.

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* Sample materials are printed on the blue pages in this volume.

RATIONALE FOR INSERVICE EDUCATION

After studying this section, the reader should be able to

1. DESCRIBE the importance of inservice training programs as a mode of introducing innovative programs in schools.
2. EXPLAIN the need for "How to Conduct a Workshop."

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 10 (WORKSHOPS--A WORKING PHILOSOPHY).

RATIONALE FOR INSERVICE EDUCATION

> ...Inservice teacher training is the slum of American education--disadvantaged; poverty-stricken; neglected; psychologically isolated; riddled with exploitation, broken promises, and conflict. But the time of renewal is at hand. New forces, new resources, new needs, new directions emerge; the next decade is almost certain to bring great change and great controversy [p. 295].
>
> (Davies, 1967)

In recent years innovation has become commonplace in education. With each innovative program comes the need for providing appropriate and stimulating teacher training. Haskew (1968) points out that "...the major burden of educating teachers is shifting to the post-entrance years, to what we used to call inservice education, but what is now more appropriately denominated as continuous preparation [p. 48]."

In no curricular area is the need for training more apparent than in elementary science teaching. The 1960s may some day be known as the decade which gave birth to a true commitment to science in the elementary school. Dozens of elementary science curriculum studies have been organized (Lockard, 1968), and great expenditures of time, talent, and money are being made for the specific purpose of strengthening science instruction at the elementary level. However, as Karplus (1964) has cautioned, "...whether the current movement will come and go as have others before it, or whether it will prove more lasting, remains to be seen [p. 293]."

Fischler and Anastasiow (1965) note that, "Inservice teacher education has been the usual method of improving elementary science teaching [p. 280]." This being so, the quantity and the quality of the inservice training offered to those expected to teach innovative programs will largely determine how lasting these programs will be. However, there has sometimes been a lack of quality and relevancy in the inservice programs which have been provided. As Davies (1967) indicates:

> School systems are increasingly establishing their own teacher-training programs... because they have lost confidence in the ability of the institutions of higher learning to provide quickly the kinds of new programs the schools want [p. 297].

On the other hand, there are still many school systems which are either unwilling or inadequately prepared to undertake their own training programs. Heathers (1967) points out that "...school systems generally lack the facilities for training teachers to utilize an innovation effectively." He further states, "Many school systems do not have staff members who are prepared to conduct the required inservice teacher education and many do not have access to experts from universities for training their teachers [p. 47]."

How then is the all-important training of teachers to be accomplished? And by whom? Summer institutes and workshops appear to offer a viable solution to the problem. In fact, Miller (1967) believes them to be the "brightest hope" to date. He reports that "...many thousands of teachers are receiving new and stimulating experiences in this fashion [p. 19]." The question remains: Who is to provide inservice education?

Davies (1967) believes that a key factor in the "renewal process" in inservice teacher training will be "interdistrict and intercollege cooperation in all aspects of education, including inservice teacher training [p. 298]." In fact, he sees area and regional cooperation and consolidation as becoming "...an economic and educational necessity." It has been an assumption of the staff of the Eastern Regional Institute for Education (ERIE) that this regional laboratory should increasingly serve as an "interagency agency." This provides the basis for ERIE's great interest in the dissemination of the laboratory's experience and insights in the area of inservice teacher training.

The pamphlet "Profile of the Elementary and Secondary Education Act of 1965" (U.S. Office of Education, 1967) describes the mission of the regional laboratories as follows:

> Laboratories have a primary responsibility for assisting in identifying, researching, and initiating educational improvements. Laboratories involve a broad respresentation of educational interests in their planning and operation and provide leadership and other services for educational research, development, dissemination, and implementation to meet the needs of a particular region or of the Nation as a whole [p. 14].

Within the framework of these broad guidelines, each of the regional laboratories is striving in its own way to apply educational theory to practice. ERIE has chosen as its mission a program for improving process-oriented education in elementary schools. In 1967 ERIE moved first to make a beneficial impact on schools by installing an existing process curriculum, Science--A Process Approach. Developed under the auspices of AAAS--The American Association for the Advancement of Science, Science--A Process Approach was judged to epitomize a process-promoting education, since the instructional objectives of the program--concerned with such skills as observing, classifying, measuring, and inferring--clearly represent process goals. An installation program with several interlocking aims was initiated. These aims are to:

1. Design strategies for installing and monitoring new process curricula in various school settings.
2. Test and subsequently improve these installation strategies.
3. Describe these strategies to appropriate audiences.
4. Collaborate with other agencies in the employment of emerging installation strategies, so as to effect wider curricular change.

Twenty pilot schools were selected for the 1967-68 study of installation tactics; one withdrew later through mutual agreement. Within these pilot school settings, ERIE is currently testing its installation strategies. To provide a broad base for the collection of appropriate data, ERIE deliberately selected pilot schools which represent a wide spectrum of characteristics.

Brickell (1961) recommended that, "Instructional innovation should be accompanied by substantial, continuing assistance to teachers [p. 31]." He spelled out the nature of this assistance in the following manner:

> ...The surest way to guarantee the successful introduction of a new program is to supply teachers with all the help they need in moving into the new approach. Help can be given in the form of professional re-education (teaching the teacher necessary new content and new techniques), guided practice in the classroom (with expert advice at hand), plenty of instructional materials, active encouragement, and a chance to get ideas from other teachers who are learning the approach [p. 31].

These recommendations characterize the basic guidelines followed by ERIE in the design of its installation strategies. It is not within the scope of this document to deal further with the ERIE installation model. It should be pointed out, however, that the ERIE staff views teacher re-education as an essential component of installation strategies.

The nature of Science--A Process Approach (AAAS, 1967) is such that the "...successful teaching of the program is related to the teacher's own competency in the processes of science [p. i]." For this reason, the developers of the program, the Commission on Science Education of the American Association for the Advancement of Science have made special efforts toward promoting workshop programs which emphasize process skills. The AAAS Guide for Inservice Instruction: Science--A Process Approach (1967) is a product of that concern for teacher re-education. Although this publication provides instructional plans, it does not attempt to deal with all the far-reaching problems faced by those responsible for planning and supervising a total workshop effort.

The sections that follow provide a rather complete guide to the design and execution of any workshop, be it large or small. Those responsible for planning a Science--A Process Approach workshop will find the flowcharts, examples, and prototype materials particularly useful. The authors have written with two audiences in mind: (1) persons interested in general workshop guidelines and (2) persons seeking help in workshops dealing specifically with Science--A Process Approach.

WORKSHOPS--A WORKING PHILOSOPHY

After studying this section, the reader should be able to

1. DESCRIBE applications of the Getzels' model of social systems to workshop planning and execution.
2. DESCRIBE several methods of actively involving participants in the activities of a workshop.
3. CITE reasons why it is considered important to involve administrative personnel in workshop activities.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 18 (FLOWCHARTS, ACCOMPANYING NARRATIVES AND THEIR USE).

> ...in-service training must be carefully structured and must take into consideration the awareness of individual resistance--without such awareness, we often settle in the schools for superficial indications of change which disappear over time [p. 70].

The inadequate preparation of teachers in the use of innovative curricular materials has proved to be a major limiting factor in implementation. Therefore, it is essential that teachers receive sufficient training to provide the full comprehension and performance which true implementation demands.

Increased comprehension of subject matter alone does not automatically produce a "good" elementary teacher. The successful elementary teacher also needs a firm understanding of how a child learns; in particular, how a child acquires and refines fundamental processes and concepts.

In planning a workshop for elementary teachers in science, it is essential to involve the participants in activities which enhance their understanding of the nature of science. It is vital during the workshop to establish a climate toward the investigative processes of science which will serve as a positive teaching reinforcement when the teachers return to their classrooms. The old maxim, "Teachers teach the same way they have been taught," supports the need to plan and execute a workshop on a foundation that encourages inquiry. The investigatory approach to teaching, while essential to effective science teaching, is not limited to this area; it serves as an excellent strategy for teaching any subject matter.

Considerations Basic to the Design of ERIE Workshops

Since 1967, with the inception of the program for the installation of Science--A Process Approach, ERIE has attempted to identify those variables within a school environment which interact in such a way as to facilitate or inhibit curriculum innovation. It was considered important at an early stage of planning to incorporate in the study a theory of change which would permeate all decision making. The theory and model developed by Getzels (1958) entitled "Administration as a Social Process" was selected as the organizing model. This model stresses two dimensions of activity in a social system--the nomothetic and the idiographic.

The major elements which constitute the nomothetic or normative dimension of activity are those of institution, role, and expectation. For example, the activities in which workshop participants engage in order to learn the necessary content and methods of a new curriculum are considered to be nomothetic activities. On the other hand, the elements of individual, personality, and need disposition constitute the idiographic or personal dimension of activity in a social system. Activities designed to keep workshop participants happy, comfortable, and interested in what is going on are idiographic in nature. Getzels' model assumes that for effective organization, there needs to exist a reasonable balance between task accomplishment (the members of a workshop feel instructional goals are being achieved) and a sense of personal social satisfaction.

Getzels' model is useful not only for studying and understanding dynamics within a school setting, but it is also a most appropriate conceptual tool to use in planning for a workshop involving consultants, administrators, teachers, and children. From formulation of workshop objectives through to final evaluation, this model is useful to planners as they attempt to maintain the nomothetic and idiographic dimensions in appropriate equilibrium.

As an example of the pre-workshop information of assistance to planners, consider the information ERIE obtained at a "teacher-leader" orientation meeting held in May of 1967. Forty teachers, two from each of the 20 pilot schools considering the installation of Science--A Process Approach, were asked to provide an evaluation of the meeting. The evaluation consisted of four open-ended questions. The responses of the teachers were classified as to whether they were of the nomothetic or idiographic dimension. An analysis of the frequency of positive and negative responses in both dimensions provided the ERIE staff with information regarding the needs of the participants.

A summary of such data provides meaningful information relative to the strengths and weaknesses of a workshop, providing guidance for decision making in planning for similar activities in the future. The traditional emphasis in workshop planning has been upon the nomothetic--securing consultants and speakers well-versed in the content of the meeting, providing the materials needed for instruction, and the like. However, if a workshop program is to be of maximum effectiveness, there needs as well to be an adequate amount of planning time devoted to the idiographic dimension.

The prevailing atmosphere of a workshop should be one which creates in the participant a real sense of his own importance in making not only the workshop but also his future use of the innovation a success. The participant is the key to success and he must be made to feel that this is indeed the case. The use of Getzels' model, then, constitutes a basic consideration in the design of successful workshops.

A second major consideration useful for planning workshops deals with the roles in which the participants are cast. As Williams (1968) has noted:

> We have found in our applied work of educational engineering that relevant research studies need to be translated into action programs for the classroom teacher. Latest research findings on

> learning and thinking must be implemented at the operating level, and teacher inservice training programs be offered in an operationally oriented direction; i.e., from the researchers concern with the _what_ to the teachers concern with the _how_ [p. 11].

The key phrase of this quotation seems to be "action programs for the classroom teacher." The recent curricular programs in science and other subject areas all appear to place great emphasis upon the active involvement of the learner. In science programs, it is the learner himself who personally performs experiments, makes observations, and draws conclusions. This must be no less true for a teacher learning about a new curriculum than it is for the pupil within the classroom. The workshop must be an action program.

The techniques which can be employed to facilitate the active involvement of workshop participants are many and varied, and it is doubtful that any one list will be complete. Among those chosen for use in the ERIE workshops are the following:

1. Limiting the number of participants per instructional group often serves to facilitate active involvement. For this reason, ERIE chose to assign no more than 18 participants to any of the basic instructional classes. The only exception to this rule were some few sessions at which a major speaker was scheduled to address the participants, and those sessions requiring audio-visual equipment available in but limited quantities.

2. Planning instructional sessions which are action-oriented constitutes another means of achieving greater participant involvement. Although speakers can at times do much to enhance workshop programs, a steady diet of oral presentations tends to inhibit participant involvement. Although workshops necessarily include passive experiences, it is vital to counterbalance such sessions with more active experiences.

3. Providing active personal use of the materials and the methods of a new curriculum serves to induce more complete participant involvement. The employment of micro-teaching experiences in a workshop program affords an excellent means of providing such experience.

4. Incorporating in teacher-level training sessions the content and materials of the actual curriculum serves as yet another means of achieving direct involvement. Many of the instructional sessions of the ERIE workshops for Science--A Process Approach were developed from pupil-directed lessons of that curriculum. However, if this is done, it is vital to "upgrade" the lesson to make it appropriate for adults.

A third consideration employed in designing workshops involves the concept that curriculum change can be better implemented through the joint participation of both teachers and administrators. Ploutz (1963) has described the role of the principal in the following manner:

> As the instructional leader, the elementary principal can and should be the key person in stimulating teachers and other administrators in recognizing and implementing an elementary science program that has previously stalled in passive indifference, lack of funds, or outdated concepts of the importance of science in our way of life... The likelihood of having a good elementary science program in a school where the principal is not active and interested in science activities is obviously not [illegible] [p. 251-52].

Although Ploutz is referring to science programs in the above quotation, he could just as well be writing about any other curricular area. There is, however, little research data available concerning the local school principal's effect upon the installation process. The ERIE staff has operated under the assumption that it is vital for the administrator to become knowledgeable about the curricular innovation he expects his teachers to employ. The principal needs to be informed in order to be an effective installation leader. For this reason, ERIE chose to directly involve the pilot school administrators in its Science--A Process Approach workshops. The principal who knows both the strengths and weaknesses of the curriculum and his teaching staff can be expected to enhance installation efforts. Preliminary indications emerging from the study of ERIE's installation efforts appear to corroborate this hypothesis.

FLOWCHARTS, ACCOMPANYING NARRATIVES, AND THEIR USE

After studying this section, the reader should be able to

1. USE the flowcharts of this section and their accompanying narratives as an adjunct to the planning, administration, execution, and evaluation of a workshop, be it large or small.
2. CONSTRUCT a chronological timetable of tasks which need to be performed in order to plan and execute a workshop.

EVEN IF YOU THINK YOU ALREADY ARE ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, PLEASE GIVE THIS SECTION A CAREFUL READING.

FLOWCHARTS, ACCOMPANYING NARRATIVES, AND THEIR USE

The rest of this document is organized around a series of flowcharts which are bound in a separate volume. These flowcharts can be applied in varying degrees to all workshop projects. As stated earlier, workshops may be small "one-man" operations, or they may involve a large number of persons. Despite the diversity, all workshops bear certain commonalities. Large or small, the workshop must have an appropriate site, a well-defined instructional program, and suitable instructional materials. The planner of even the most modest workshop needs to be aware of the full set of workshop planning tasks. Only then can he intelligently discard the tasks that are impractical or unnecessary for his situation.

On the other hand the person having primary responsibility for a large-scale workshop effort will need to operate quite differently, although still within the same general framework. If a large and diverse instructional staff is to be involved, it will probably be necessary to structure more formally each workshop session in order to achieve continuity. In view of the complexity of large workshops, the director will want to assign responsibility for planning specific workshop components to staff associates. In this case, each flowchart could serve as a well-defined set of tasks for a workshop component.

Even a quick perusal of the procedures that follow will make it apparent to the reader that this document is based upon a large-scale "live-in" type of workshop. The ERIE workshops of 1967 and 1968 were of this type, involving 240 and 450 participants, respectively. However, the reader should note that the planning required for a "commuter" type of workshop is largely similar, although somewhat less complex. The planner of a "commuter" workshop who wishes to use these materials should simply eliminate from his concern those tasks which are uniquely related to "live-in" workshops.

The procedures for planning and managing a workshop are structured in a series of detailed flowcharts. Each flowchart covers a specific component of workshop design and/or operation. Each workshop component is presented in the flowchart as a set of behaviorally-stated tasks, arranged in a numbered sequence to designate the order in which tasks are to be accomplished. Although the flowcharts are useful guides in themselves, this volume provides corresponding narrative sections along with additional sample materials used in ERIE's workshops. Narratives call particular attention to "Milestone Tasks" of special significance to workshop planners. Milestone tasks are presented on the frames with a heavy double outline.

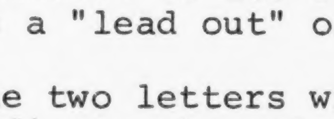
Among the key features of the flowcharts are the following:

1. Each task is written in generalized form; that is, although the ERIE experience upon which this document is based came in the form of elementary science workshops, each task is written so as to be potentially useful in conducting _any_ workshop, regardless of size or content.

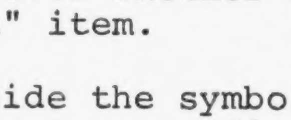
2. Each task is written in the form of a behavioral action statement. As such, each statement represents a task to be accomplished; it does not attempt to designate who is to do it.

   Science--A Process Approach (1967-69), the curriculum upon which ERIE's workshop experience is based, is a program built upon behaviorally-stated educational objectives. For that reason, the writers of this document specify each task in behavioral terms. The verb of each statement has been capitalized for emphasis. To the greatest extent possible, use of verbs is restricted to the AAAS list of "action words."*

3. Each workshop task is enclosed within a rectangle. References between flowcharts are made by directional symbols as follows:

   LEAD OUT REFERENCE

   LEAD IN REFERENCE

   The direction in which the symbol points relative to its frame indicates whether it is a "lead out" or "lead in" item.

   The two letters written inside the symbol indicate the related flowchart, according to the following key:

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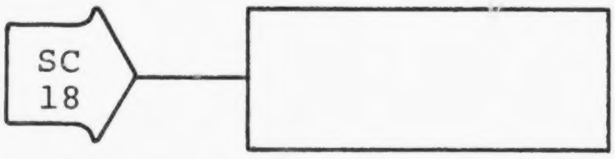
*See AAAS Guide for Inservice Instruction (pp. 32-45).

KEY FOR INTER-FLOWCHART REFERENCES

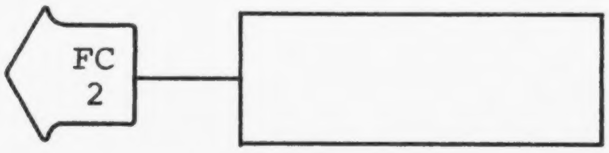
Symbol	Flowchart
IP	Instructional Program
FC	Funding and Costs
ST	Staffing
MA	Materials
SC	Scheduling
SL	Site Logistics
MT	Micro-Teaching
PR	Publicity and Registration
CC	College Credit Procedures
NI	Non-Instructional Activities
EV	Evaluation

Thus, the symbol



indicates a "lead-in" to the task in question FROM the Scheduling Flowchart, Item 18.

On the other hand, the designation,



indicates a "lead-out" reference. The reader should REFER TO the Funding and Cost Flowchart, Item 2.

4. Milestone tasks, framed with a double line, are discussed in detail in the accompanying narrative.

5. The flowcharts are bound in a separate companion volume for facility in handling and to enhance their use independent of this narrative document.

FLOWCHART IP

INSTRUCTIONAL PROGRAM

With the help of the materials of this section, the reader should be able to

1. CONSTRUCT a viable instructional program for a workshop.

IF YOU ALREADY HAVE A COMPLETE INSTRUCTIONAL PROGRAM, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 39 (FUNDING AND COSTS).

THE INSTRUCTIONAL PROGRAM: FLOWCHART IP

The instructional program of a workshop is perhaps its most crucial component. Unless it truly meets the education needs of its participants, the workshop cannot be considered to be a success. For this reason, the workshop instructional program requires careful design and skillful management.

In some cases, those responsible for conducting the workshop will be fortunate enough to find that rather complete instructional plans are already in existence. For example, in the case of workshops designed to prepare teachers for their initial work with Science--A Process Approach, the planner can use the AAAS Guide for Inservice Instruction. When available, instructional programs should be examined carefully for possible use, since the task of producing a total set of workshop instructional plans "from scratch" represents a formidable work load. The Instructional Program Flowchart takes this possibility into account in items 9a, 10a, and 11.

Regardless of the availability of instructional programs, it is imperative that the instructional goals of the proposed workshop be clearly delineated well in advance. Although broad and fairly non-specific goals will be useful as an early first step, it has been the experience of the

ERIE workshop planning staff that concise and unambiguous behaviorally-stated objectives best provide the sense of purpose and direction to facilitate effective workshop planning. The rationale for the employment of behaviorally-stated instructional goals is found in the writings of such proponents as Mager and Popham. The ERIE staff firmly believes in the utility of behaviorally-stated educational objectives and highly recommends that workshop planners operate via this method.

In order to clarify the role which behaviorally-stated instructional goals can play in workshop planning, consider the following example, based on the ERIE workshop "Measuring" session. The general goal of this session is to prepare K-3 teachers to teach science exercises which involve measuring techniques which make use of both arbitrary and metric units of measurement. The specific instructional goals for this two-hour session are stated as follows:

At the end of these activities the participants should be able to

1. Order objects by comparing a property that the objects have in common, including length, area, and mass.
2. Describe objects quantitatively using arbitrary units to measure length, area, mass, and volume.

3. Describe objects quantitatively using appropriate units of the metric system for length, area, mass, and volume.

Among the advantages of stating the workshop instructional goals in this manner are the following:

1. Their use facilitated the development of an instructional "script" for this workshop session. Once the workshop planner has established clear-cut goals, it becomes much easier for him to design activities to meet those goals.
2. Their use made relatively easy the task of determining the sequence of instructional events to be used during this working session. In other words, behaviorally-stated instructional goals more readily enable the planner to "program" (in the computer sense of the term) instruction for maximum educational impact.
3. Their use facilitated the development of evaluative activities to be used at the end of the session. If one knows precisely what it is that the participants are supposed to be able to do as a result of the instruction, the design of appropriate evaluative activities is relatively easy.

Thus, the time devoted to the task of constructing behaviorally-stated instructional objectives can be expected to be more than offset by the efficient and effective planning and execution which their use permits.

Milestone Tasks

7. IDENTIFY any logistical assets and/or limitations which must be considered in determining the instructional procedures to be used. (i.e. videotape playback/recording equipment, room sizes, access to pupils for microteaching activities, etc.)

This is a most significant item in the early planning of the instructional program. It is vital that those responsible for constructing the instructional program fully acquaint themselves with the site characterisitics. For example, the size of available rooms may make large-group sessions impossible. If a proposed instructional plan is highly dependent upon participant use of table space, early verification of the availability of such items must be made. Since the instruction will suffer as a result of critical deficiencies, make sure that the planning staff is knowledgeable regarding such factors as these:

1. What are the sizes of the available rooms?
2. How many rooms have table space?
3. How many rooms have such non-moveable equipment as chalkboards, fixed screens, etc.?
4. How many rooms have sinks and running water?
5. How many rooms have gas outlets?
6. Is videotape recording and/or playback equipment available for use? In how many different places simultaneously?

7. Are children available for such activities as microteaching, demonstration teaching, and the like?

8. IDENTIFY and STATE the overall instructional strategies which are to be employed. (i.e. degree of participant active involvement, extent of reliance on demonstrations, etc.)

It is important at an early stage to decide upon the overall instructional philosophy which the workshop planners wish to pursue. For example, in the ERIE workshops it was agreed that instruction should:

1. Actively engage each participant in the use of each of the "processes" of _Science--A Process Approach_.
2. Exemplify the teaching style deemed desirable for _Science--A Process Approach_.
3. Actively involve each participant in the use of as many of the instructional materials he is expected to use when teaching _Science--A Process Approach_ as possible.
4. Provide each participant with at least one opportunity to teach a _Science--A Process Approach_ lesson to a child.

The earlier section on the working philosophy for workshops provides a more complete discussion of the ERIE instructional model.

Whatever the actual content of a given workshop, it is recommended that persons responsible for instructional programs make every effort to provide:

1. A maximum of active participant involvement with the content of the program.
2. Exemplary teaching in terms of style.
3. Maximum involvement with the materials of the program.
4. At least one opportunity for each participant to teach a lesson of the program.

Since the guidelines above are highly dependent upon active participation, small instructional groups are very important to successful implementation. Whenever larger groupings become necessary, all effort should be made to heighten interest in such sessions by such techniques as:

1. Use of audio-visual materials.
2. Active participant involvement via handout of small packets of materials.
3. Interaction of participants with the presenter.
4. Allowing time for participants to solve problems and/or discuss ideas at their places.

In large-group sessions, remember the importance of using visual materials large enough and colorful enough to be seen by all.

12. CONSTRUCT a set of instructional plans (using existing, modified and/or "new" plans) designed to provide for the attainment of the stated behavioral goals of the workshop.

In constructing such a set of instructional plans, be sure to check the following items:

1. If existing plans are to be duplicated for instructional use, permission of the copyright holder, in writing, must be obtained in advance.

2. Verify the time requirements of each instructional segment. It is frustrating to instructor and participant alike either to run short of material or to be severely pressed for time to complete the session.

3. Each instructional plan should include:*

    a. Title

    b. Credits (if derived in part or entirely from existing sources)

    c. Objectives (behaviorally-stated instructional goals)

    d. Rationale (to help the instructor to understand better the content, procedures, and/or the instructional setting of this particular session)

    e. Materials (a complete listing, including quantities, of the materials required to teach this session. This must be done with great care so as to insure that the necessary materials will be acquired in sufficient quantity.)

---

*This is based upon the exercise format devised by the American Association for the Advancement of Science Commission on Science Education for use in Science--A Process Approach.

f. Activities (a challenging introductory activity, followed by one or more activities designed to help the participant to acquire the desired behaviors. It is recommended that each activity be spelled out in great detail--perhaps to include sample questions and appropriate responses--so as to promote relative uniformity of instruction. In larger workshops, in which several instructors are scheduled to teach a given session to different groups, this is of special importance.)

g. Appraisal and/or Competency Measure (evaluative activities designed to assess participant acquisition of the behaviors espoused as instructional goals and/or to provide feedback information for future workshop modifications.

13. CONSTRUCT for each instructional session an "appraisal" which assures the acquisition of the stated behavioral goals.

It has been indicated that among the chief advantages of the use of behaviorally-stated workshop goals are:

1. Their clear-cut specification of what it is each instructional segment is to accomplish for the learner, and
2. Their facilitation of the development of evaluative activities to be used at the end of each workshop session.

The evaluative activities referred to in Item 13 are conducted for the purpose of answering the specific question: "Has the participant indeed acquired the behavior or behaviors which this instructional segment was designed to foster?" As such, these activities will ultimately "tell the tale" regarding the success or failure of any given instructional segment of the workshop.

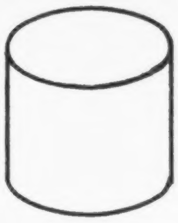
Consider again the ERIE Science--A Process Approach workshop session entitled "Measuring." One of the specified objectives for this session is stated as follows:

> At the end of these activities, the participants should be able to DESCRIBE objects quantitatively using appropriate units from the metric system for length, area, mass, and volume.

Given this objective, how does one determine that the instructional activities of this session have indeed helped the participant to acquire the specified behavior? Once a goal has been clearly stated in behavioral terms, the task of assessing its acquisition by participants becomes relatively easy--namely, one places the participant in a problem situation and observes his performance. Since learning is an individual action, the most valid way of determining successful learning must also be based on individual performance.

Individual assessment may not always be feasible. In the ERIE workshops, for example, the large number of participants simply did not permit individual assessment to be considered. It therefore became necessary to devise methods of assessing individuals within group situations. In the case of the "Measuring" objective cited above, it was decided to have each member of the class respond individually to a group appraisal question sheet. Here is the problem situation as it was given:

> Assume that you have been provided with some materials, including a equal-arm balance, a set of gram masses, a graduated cylinder, a metric ruler, and a piece of graph paper having 1-centimeter by 1-centimeter squares. How would you use these materials to make the measurements listed below? Do not actually make the measurements; merely describe how you would make them.



PLASTIC CONTAINER X

A. The volume of water that Container X could hold when filled to the brim is__________.

B. The mass of Container X is_______________.

C. The height of Container X is_____________.

D. The area of the flat, circular base of Container X is________________.

15a. IDENTIFY and STATE the sequence in which the instructional sessions are to be presented.

Experience with Science--A Process Approach convinced the ERIE staff of the importance of sequencing instruction for maximum learning effectiveness. There is really nothing new about the concept of the learning hierarchy as espoused in Science--A Process Approach. Skilled teachers sequence instruction, either intuitively or through careful planning, so as to enable the learner to efficiently and effectively move from one learning task to the next. Fact-centered instruction, by its very nature, lessens the importance of the sequencing of learning. It often matters little whether or not one item of content knowledge precedes another.

The emphasis in Science--A Process Approach (AAAS Commission on Science Education 1967a, 1967b), however, is upon skill ("process") acquisition. Gagne' and his associates (1965, 1967) present strong evidence of the importance of the sequencing of instruction in the acquisition of knowledge. It is therefore recommended that great care be taken to assure that the sequence of instructional sessions will facilitate learning. Some decisions regarding what should precede something else are easily made. For example, in Science--A Process Approach workshops, it is apparent that a session dealing with the process of "Inferring" must be preceded by one dealing with "Observing." In this case there is an obvious dependency. Inferences are based upon observations.

Another example further illustrates the point. In Science--A Process Approach, the process of "Predicting" is defined as the skill of making inferences from data, usually in graph form. It is obvious that workshop sessions dealing with "Predicting" must follow after those dealing with "Inferring" and "Communicating" (which involves in part, the acquisition of graphing skills).

In some cases, in the absence of hard data, experience and intuition will help determine a particular instructional sequence. However, the main point here is that it is important for workshop planners to give careful consideration to the sequencing of instruction. By focusing upon the sequence of instruction, the planner will avoid the obvious pitfalls. As data (See Evaluation Section) becomes available, further adjustments in sequence can be made from an empirical base.

Remember also that the decisions made regarding instructional sequence must be given careful consideration by those who are to construct workshop schedules. (See Scheduling Flowchart).

17a. CONSTRUCT a master schedule which designates the instructional sequence which each group of participants is to follow.

The construction of a master schedule is a complex task; many varied factors must be taken into consideration. These factors are included in the tasks described in items 15a, 15c, 15d, and 16a.

1. Total number of participants.
2. Grouping criteria (i.e. grade level at which teaching).
3. Maximum number of participants to be allowed per group.
4. Staff availability (number of individuals, and any special characteristics which might limit their use).
5. Total number of teaching sessions to be employed, and the estimated time needed for each.
6. Sequence of instructional sessions.
7. Equipment availability and limitations.
8. Number of rooms available, and any special characteristics each may possess.
9. Room locations relative to each other.
10. Meal times and "break" times to be included in the schedule.

The detailed procedural outline for Task 17a is provided in the Scheduling flowchart. The narrative on scheduling includes as a sample the master schedule used in the ERIE workshop of 1968.

17b. DESCRIBE, at a pre-workshop meeting, the instructional plan for each session to those who are expected to teach it.

If the workshop requires a large instructional staff, it is important to provide such staff with an appropriate orientation to the proposed instructional program. In the case of the ERIE workshops, teachers trained largely by "outside" workshop staff were destined to work closely with ERIE consultants during subsequent months--perhaps, years. In this situation, it was important that each "outside" instructor present Science--A Process Approach as ERIE envisions the program, and that the instructor's responses to the teachers' questions be in accord with ERIE thinking and policies.

Consequently, ERIE planners proceeded in the following manner with regard to staff orientation:

1. Well in advance of the workshop, each instructor was sent copies of each instructional plan he was to teach. An accompanying letter encouraged instructors to review carefully each lesson plan with a view toward making suggestions for possible revisions. Such suggestions are sent to ERIE prior to August 1; the workshop itself was scheduled for the last week of that month.

2. The letter cited above also announced a pre-workshop orientation meeting. This was scheduled to convene two days prior to the opening of the workshop itself. This meeting served two purposes:

    a. It gave the staff opportunities to become acquainted with each other, so as to begin to experience some degree of cohesiveness and friendly informality.

    b. It made time available for the instructors to discuss in detail with ERIE staff the lesson plans and instructional strategies to be employed.

The overall plan of the orientation program was as follows:

1. Staff was scheduled to arrive around or before 6:00 p.m. on Friday evening.

2. A general meeting Friday evening at which time one of the process sessions ("Observing") was presented to the entire group, since almost all would be expected to lead this session. This meeting also facilitated a general discussion of the teaching style the staff was to emulate. Lastly, it provided an opportunity for ERIE staff to describe its overall plans for the installation program. Major facets of ERIE policies were explained to the group.

3. Most of the day on Saturday was devoted to a series of small-group meetings. These meetings were designed to provide thorough discussions of the various lesson plans by the instructors assigned them. The leadership within each group was provided by an ERIE staff associate. Some minor revisions of lesson plans were made as a result of these discussions.

   A general meeting late Saturday afternoon provided the visiting instructors with yet another opportunity to receive information regarding the workshop and ERIE plans and policies.

4. A staff meeting was scheduled for Tuesday evening during the workshop week. This provided the staff with an additional opportunity to gain cohesiveness and to discuss problems which came to light earlier in the workshop.

It is recommended that staff orientation be included as an integral workshop activity. Cohesiveness of purpose, a relative uniformity of teaching style, and an opportunity for close social contact are important outcomes of a thoroughly-planned and carefully-executed orientation program.

19. Instructors TEACH from the prepared instructional plans.

One of the guiding principles of Science--A Process Approach is that instruction be based upon a firm knowledge of what the learner can already do, as well as what the instruction is to help him to acquire. Therefore, when the teacher knows that the children already possess some of the behaviors of a particular lesson, he typically modifies instruction accordingly. This point should receive due consideration in any and all instructor orientation discussions.

Reference has been made to the importance of teaching style. The style employed by instructors during the workshop should exemplify the style teachers are expected to use with their pupils. Further discussion of this concept and its importance is found in Chapter II.

FLOWCHART FC

FUNDING AND COSTS

With the help of the materials of this section, the reader should be able to

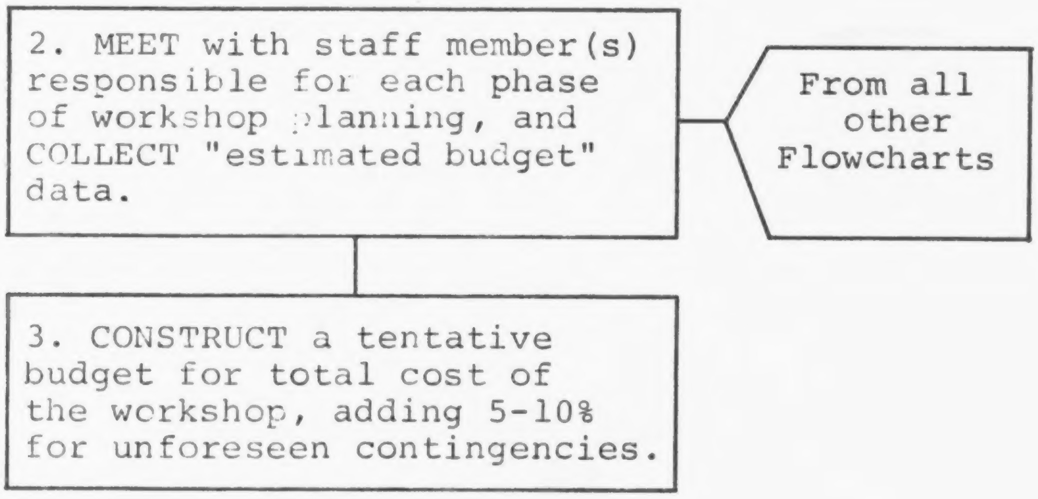
1. CONSTRUCT a budget for a workshop
2. DETERMINE method(s) for funding a workshop.
3. ADMINISTER the financial aspects of a workshop program.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 43 (STAFFING).

FUNDING AND COSTS: FLOWCHART FC

A workshop cannot be conducted in the absence of adequate financial resources. Sound financing is the single aspect that critically determines if the workshop program can indeed be conducted. At appropriate positions in the "Funding and Costs" flowchart, the workshop director is advised to CANCEL all workshop plans if costs estimates are prohibitive, or if funding is inadequate. Financial constraints ultimately determine how elaborately the program may be developed.

Milestone Tasks


2. MEET with staff member(s) responsible for each phase of workshop planning, and COLLECT "estimated budget" data.
From all other Flowcharts
3. CONSTRUCT a tentative budget for total cost of the workshop, adding 5-10% for unforeseen contingencies.

The monetary planning for an extensive workshop requires the informed cooperation of all involved groups. Accurate preparation of estimated budget figures by individuals responsible for each phase will facilitate the preparation of a tentative total budget for the workshop. Foreseeable expenditures should be estimated as realistically as possible.

If the workshop program is being prepared for the first time, it would seem prudent to add 5-10% to the master budget for unforeseen contingencies. In subsequent years, this "cushion" might be reduced or eliminated.

5. IDENTIFY possible source(s) of funding for the workshop.

The workshop planner must face one of two important questions:

1. Does a source of funding, with an adequate budget for such activities, exist within the framework of the organization?
2. Must funding be provided from an external source?

If the workshop director is fortunate enough to be included in the first of the above categories, he can readily turn his attention to other planning details.

The complications which arise from a need to secure external funding are often many in number, but not insurmountable. The prime pressure imposed upon the workshop director in the securing of funds is often a "time" pressure. He first must identify a possible external source of financial assistance. Next he must draft and submit a formal proposal to secure the necessary funding. Deadlines for the submission of proposals generally fall months in advance of the time for which the funding is requested. In addition, funding agencies often delay their announcements of financial grants until the time for the workshop is virtually at hand. It is therefore necessary to proceed with detailed planning before funding has been assured. Because of possible complications, it is important to establish and maintain channels of communication with the funding agency.

7a. If cost data are not acceptable, have staff SUBMIT reduced budgets as possible, and recycle or seek other sources of funding.

This item is self-explanatory but nonetheless of considerable importance. Obviously, if costs are prohibitive, they must either be pared or other sources of financing must be secured to make the workshop financially feasible.

Budget cuts obviously must be made with great care, lest workshop quality be allowed to suffer as a result. In fact, it may be wise to consider that certain cost areas are non-negotiable. For example, in the absence of adequate funding, it would not make sense to attempt to conduct a highly activity-oriented workshop program with large instructional groups.

11a. CONSTRUCT appropriate accounting procedures and record forms.

11b. CONSTRUCT procedures for making disbursements, both "standard" and "petty cash" types.

11c. CONSTRUCT procedures for requisitioning materials and service.

11d. CONSTRUCT procedures for receiving and recording monies received.

Many organizations undertaking an extensive workshop program have established procedures for the necessary procuring and accounting tasks in this sequence. In the absence of existing organizational procedures, it is imperative that an adequate plan for procuring and accounting be formulated early in the workshop planning stages and carefully followed throughout the duration of the program.

16. CONSTRUCT and SUBMIT report(s) to any funding agencies as required.

If funding has been granted by an external agency, it is almost certain that a structured final report will be required. Whether or not a formal report is required, it is recommended that a summation statement on overall costs of conducting the workshop be prepared for future reference.

FLOWCHART ST

STAFFING

With the help of the materials of this section, the reader should be able to

1. STATE a method for identifying and naming staff member(s) appropriate to plan, administer, and execute a workshop.
2. CITE several possible methods for meeting the idiographic needs of "outside" staff assembled for a workshop.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, OR IF YOUR WORKSHOP IS TO BE A "ONE-MAN" OPERATION, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 50 (MATERIALS).

STAFFING: FLOWCHART ST

Top priority in planning a professional meeting must be given to the identification and hiring of staff members best qualified to attain the stated goals of the program. Despite the most pleasant physical environment, ideal meeting facilities, foolproof scheduling, and vital instructional program, a workshop can easily deteriorate into a shambles unless a knowledgeable, enthusiastic, and empathetic staff is provided. In recalling school experiences, everyone notes that some teachers stand out vividly in personal recollections, although the content they expounded may long since have been forgotten. Often the image projected more strongly influences our likes and dislikes than does the inherent value of the material being presented.

The staffing flowchart branches into two major subsections. The first deals primarily with staff necessary to prepare for the program. It includes staff assigned to produce instructional lesson plans, to devise schedules, to establish the budget, and to handle publicity. Other staff members are needed to investigate possible workshop sites and to procure instructional materials. These tasks must be completed well in advance of the opening of the workshop in order to avoid last-minute stresses. The second branch of the flowchart involves the selection of staff members to serve as instructional and supportive personnel at the workshop site.

It is imperative that care be taken in matching the person being selected to the job he is being asked to undertake. The strengths and weaknesses of each staff member must be carefully evaluated in order to secure the maximum value and efficiency of each person. Individual staff preferences should also be carefully considered. These must be obtained well in advance of the program and should be utilized whenever possible to assure a staff that is pleased with its responsibilities.

The apparent success of the ERIE workshop programs of 1967 and 1968 was due in no small measure to the high quality of performance of the staffs involved. Some comments obtained from participants via workshop evaluation forms underline the vital need to select staff who are both knowledgeable and empathetic.

> Your entire staff and consultants communicated a warm concern, along with the expected professional proficiency and command of the subject matter.
>
> The staff has been of the highest caliber, really organized and prepared to teach their material, very familiar with the many aspects of the approach, and so very friendly, personable, and willing to discuss any question or problems.
>
> I especially like the informal way that everything was run, not only classes, but meal times and all other times also. I think the attitude of the staff and consultants did a lot to make us all feel at ease. They were always friendly, not only to each other but to us. It was always as if we were all equal and not two separate groups of instructors and participants.

> The instructors were very pleasant, most helpful, considerate and so very patient with all of us.
>
> The instructors were great! Never before have I left every class in a day feeling I got the message and longed for ten more minutes.

Milestone Tasks

3a. IDENTIFY and DESCRIBE the characteristics each potential staff member is to possess--staff assigned to produce the instructional program.	3b. IDENTIFY and DESCRIBE the characteristics each potential staff member is to possess-instructional and supportive staff who are to conduct the workshop.

These two parallel items form the keystone of the staffing task. With the identification of the purpose and goals of the workshop, the tone of the program becomes firmly established. Now, the workshop planner is faced with the task of delineating specific job responsibility.

Both the Staffing and the Instructional Program sections of this document describe tasks to be assigned to staff personnel very early in the workshop planning stages. These tasks deal primarily with the selection and/or production of instructional plans. If already-existing materials are to be used for the basic instructional program (such as the AAAS Guide for Inservice Instruction), the staff member responsible for preparing the final instructional plans must have first-hand knowledge of their implementation.

This knowledge is best gained through prior use of the materials. Therefore, a qualification required of the staff member assigned to this task should be his previous use or otherwise-obtained knowledge of materials such as the AAAS Guide for Inservice Instruction. If entirely new instructional materials are to be prepared, the staff member assigned to prepare such materials must have had prior teaching experience with the course. In like manner, each staff member--in either an instructional or a supportive role--should first be identified and described in terms of the professional qualifications and personal characterisitics he should possess. Certainly, instructional personnel in a workshop such as one dealing with Science--A Process Approach should, as a prime qualification, have had teaching experience with the materials of the program. Those staff members giving demonstration classes in Science--A Process Approach need to be teachers who have used the program successfully with their own classes.

Although the qualifications of some supportive staff members (such as those handling registration tasks) are not as demanding and therefore not as limiting as those described above, it is recommended that each role be thoroughly defined. In this manner, it is possible to assure that the personnel selected meet the role criteria.

4. CONSULT with others who have conducted similar workshops to have them suggest potential personnel.

Once the staff role has been identified and described, the next task obviously is to attempt to fill each position with the best available persons. As mentioned above, ERIE was fortunate in staffing its 1967 and 1968 workshops; it was possible to name to staff positions a relatively large number of individuals who possessed a wide range of experience with Science--A Process Approach. The staff for these workshops was derived from the following sources:

1. Members of the writing teams which had produced the Science--A Process Approach program.
2. Science education advisors from the New York State Department of Education and the Department of Public Instruction of the State of Pennsylvania.
3. Professors of science education from colleges and universities in New York, Pennsylvania, Maryland, and Texas.
4. Principals of schools using Science--A Process Approach in New York and Pennsylvania.
5. Teachers using Science--A Process Approach in schools in New York and Pennsylvania.
6. Teachers from schools in New York and Illinois which had served as original "try-out" centers for AAAS.
7. Elementary and science supervisory personnel from schools using Science--A Process Approach in New York and Pennsylvania.

Many consultants included in the list above were known professionally to ERIE staff members. They in turn were invited to suggest the names of persons they knew to have strengths in terms of Science--A Process Approach.

Wives and other family members of the workshop instructional staff may sometimes be well-suited to assuming tasks such as those dealing with the distribution of equipment and the supervision of children utilized in the micro-teaching experience. They will often be more effective and more reliable than other staff who might otherwise be hired.

Items 5-13 of the staffing section represent a possible scheme for the production of final drafts of instructional materials. It consists of a series of planning and writing tasks to be assigned to individual staff members. Completion of these tasks is followed by group evaluation and decision-making as to the best of the alternatives presented. These steps and processes are to be continuously recycled until final drafts are accepted as the "best-choice" plan for instruction.

Items 14-28. Once the instructional staff has been hired, the final instructional plans must be appropriately assigned to responsible staff members. Each instructor must have ample time to evaluate these plans, to learn how they fit into the total workshop program; he must have the opportunity to interact with others to assure that the objectives of the workshop will be met (Items 23, 24, 27a). Referring to the Getzels' (1958) model of "Administration as a Social Process," these items provide the role expectation for the instructional staff in nomothetic terms. Items 26 and 28 help to fulfill an idiographic need of the staff members, by bringing them together in a relaxed social environment, so that a common bond of purpose can be established.

FLOWCHART MA

MATERIALS

With the help of the materials of this section, the reader should be able to

1. STATE a method for constructing a master list of materials needed during a workshop.

2. STATE a method for identifying and naming possible source(s) of the materials for a workshop.

3. IDENTIFY workshop constraints imposed by any limitation of materials.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 55 (SCHEDULING).

MATERIALS

MATERIALS: FLOWCHART MA

The number and kinds of materials for the workshop are dependent upon the nature of the instructional program, the number of participants and the instructional schedule. The need for thorough planning was stressed earlier in the discussion of the instructional program. Instructional plans predetermine the specific materials which will be needed for the functioning program. In scheduling for instructional sessions, one must consider not only the number of participants involved in each instructional segment, but also the number of concurrent instructional sessions. If more than one instructional session utilizing identical equipment is scheduled during the same time interval, the material needs are increased in direct proportion to the number of concurrent sessions scheduled. Ultimately, success of the instructional program requires the proper materials available in sufficient quantity.

Early in the preparation for the workshop must come the selection of the staff member or members responsible for procuring instructional materials. Among the useful traits recommended for such staff are their abilities to "beg, borrow, or build." The task of coordinating materials requires a person knowledgeable in sources of materials, who has a facility for keeping tabs on a wide variety of items, and who is physically able to haul equipment from place to place.

Milestone Tasks

2. CONSTRUCT a master list indicating (a) all required material, and (b) quantity of each which are needed.

Construction of a master list for materials is one of the more tedious tasks in this sequence, but it must be undertaken if last-minute equipment problems are to be avoided.

Each scheduled instructional session must be thoroughly analyzed to determine the materials it requires. The total quantity of materials is determined by the number of participants as well as the number of concurrent sessions requiring the use of identical equipment.

4a. IDENTIFY and STATE materials which may be borrowed for "no cost" use.

Frequently, materials and equipment for the workshop may be borrowed. Ingenuity on the part of the staff member responsible for equipment can direct him to many possible sources for "borrowed" materials. It is vital that the use proposed for these materials-on-loan be described adequately to the lending source. It is equally important that items be collected, labeled, and promptly returned to the source on a pre-determined time schedule.

4b. IDENTIFY and STATE materials which the workshop participants are to bring to the workshop.

Requests that participants bring materials to the workshop should be avoided wherever possible. If unavoidable, such requests should be kept to a minimum. This practice is inconvenient to the participant, and it is possible that the item will be left behind. On the assumption that some will forget, a supply of such items should be made available at the workshop site.

4e. IDENTIFY and STATE materials which must be specifically produced for workshop use.

Items which must be specially produced pose unique problems. Adequate time must be allotted prior to workshop time to produce special items not commercially available.

Examples of special items needed for the instructional program of the ERIE workshops can be cited. One session on the process of "Inferring" required specially-constructed circuit boards. Since as many as four sessions using these materials were scheduled concurrently, four complete sets of these materials had to be painstakingly produced. In another instance, envelopes containing a variety of geometric shapes cut from colored construction paper had to be prepared--a task which demanded many hours with scissors and paper. These requirements for special materials demand adequate time allotment for their preparation.

14. CONSTRUCT a budget estimate for items to be purchased, rented, or produced by staff.

This time-consuming responsibility is essential to budget determination and final accounting. It needs to be accurately accomplished.

19a. CLASSIFY materials for convenient dissemination and use.

At least two distinct functions are represented by Item 19. The first function is the collection of materials and equipment, whether borrowed, rented, purchased, constructed, or already on hand. A second function is the classification of these materials into a scheme for convenient dissemination and use, with minimum amount of duplication. In the ERIE workshops the first major subdivision was in terms of materials to be used in the instructional classes for participants on the one hand and those materials to be used in micro-teaching experiences on the other.

21. At conclusion of the workshop, COLLECT, CLASSIFY, and/or PACKAGE materials as to those which are to be (a) stored, or (b) returned.

The conclusion of a large workshop program usually finds the staff tired and "drained." There is a tendency to collect the materials too hastily. However, this should be done with considerable care. The relatively small amount of time and effort expended on this activity at this time is well worth the effort. Once rented and borrowed materials have been returned, remaining materials should be carefully reclassified and packaged for storage.

FLOWCHART SC

SCHEDULING

With the help of the materials of this section, the reader should be able to

1. STATE a method for constructing appropriate schedule(s) for group(s) of participants attending a workshop.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OGJECTIVE, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 64 (SITE LOGISTICS).

SCHEDULING: FLOWCHART SC

Thorough scheduling, a prerequisite to the smooth operation of any workshop, is an arduous task involving many hours of preparation. However, the rewards of such an effort are considerable. The objective of the scheduling planner is a smoothly coordinated workshop where participants and staff alike know what they are doing, when they are supposed to do it, and what purpose each segment serves.

To the planning staff, meeting deadlines is the accepted mode of life in the hectic weeks just before the workshop opens. Not until the participants have arrived and the workshop program is underway, however, is it possible to observe how the pieces of the scheduling puzzle fit together. Even after careful planning, there are times when vital pieces of the puzzle are missing or do not fit satisfactorily. Unexpected circumstances, such as staff illnesses or bad weather, can intevene to pose serious problems.

Although this section is devoted primarily to scheduling the instructional program, other workshop facets also demand the preparation of carefully-constructed schedules. In the staffing sequence, for example, schedules are needed to handle the arrival of visiting staff members. Also, a schedule is required for the pre-workshop staff briefing session. Likewise, schedules are needed for the supportive personnel dealing with such duties as registration and equipment. The registration activities require schedules for room assignments, meal times, and recreational periods.

As stated earlier, the construction of a master schedule of the instructional program is a complex task. This schedule must take into consideration such factors as the total number of participants, any special grouping criteria, maximum numbers of participants per group, staff availability, number of teaching sessions and time required for each, the sequence of instructional sessions, equipment availability, and rooms available and any special characteristics each may possess.

A copy of a master schedule from the 1968 ERIE workshop is included at the end of this section. Reference is made to it below in the discussion of Milestones of the Scheduling Sequence.

Milestone Tasks

1. IDENTIFY and STATE the total number of instructional sessions to be employed in the workshop.

The 1968 ERIE workshop consisted of 25 instructional periods each for groups of kindergarten, first, second, and third grade teachers. The code for the sessions appearing on the master schedule is given below:

Name of Session	Code	No. of Periods
1. Opening Session	Opening S	1
2. Sessions on Organization of Syllabus		
a) Introduction to *Science--A Process Approach*	Intro. to *SAPA*	1
b) Behavioral Objectives	Beh. Objective	1
c) Hierarchy	Hierarchy	1
3. Session on Micro-Teaching		
a) Planning Periods	P_1 & P_2	2
b) Micro-Teaching Periods	Teach 1 & 2	2
c) Reporting Periods	R_1, R_2, R_3, & R_4	4
4. Process Paper Sessions		
a) Observing	O	1
b) Measuring	M_1 & M_2	2
c) Inferring	I	1
d) Communicating & Predicting	CP_1 & CP_2	2
e) Space/Time	S/T	1
f) Using Numbers	UN	1
g) Classifying	C	1
5. Sessions on Learning Theory		
a) Learning Theory	Learning T	1
b) Elkind Presentation	Elkind Talk	1
6. Faculty Meetings	Meetings	1
7. Closing	Closing	1
	TOTAL	25

The program for fourth grade teachers included the sessions mentioned above, and additional sessions dealing with the "integrated" processes. A total of 30 instructional periods were scheduled for fourth grade teacher groups. (This is shown in the four grouped columns at the right on the master schedule.)

Name of Session	Code	No. of Periods
8. Integrated Process Sessions		
a) Defining Operationally	D O	1
b) Formulating Hypotheses	F H	1
c) Controlling Variables	C V	1
d) Interpreting Data	I D	1
9. A Content Session: "Batteries, Bulbs, and Circuits"	Content	1
10. A Techniques Session on Microscope Use	Tech	1

3a. CONSTRUCT an ordered sequence for those instructional sessions which must be ordered.

The staff responsible for the instructional program felt it was essential that the first process session presented must be the one entitled "Observing." This session was conducted for each grade level group on the first day of the workshop. The "Introduction to Science--A Process Approach" Session was conducted as early as possible in the workshop program. Additionally, the eight periods devoted to Micro-teaching contained their own internal ordering, the sequence being: (1) planning periods, (2) teaching periods, and (3) reporting periods.

3c. IDENTIFY and STATE any workshop sessions which lend themselves to large-group techniques.

It was felt by the staff that some sessions which did not involve the use of equipment could be conducted in larger groups. Included in this group of sessions were: (1) Introduction to Science--A Process Approach, (2) Behavioral Objectives, (3) Hierarchy, (4) Learning Theory, and (5) the individual school faculty meetings.

3d. IDENTIFY and STATE any total workshop presentations.

Three sessions were conducted as total group presentations. They were; (1) the opening session, (2) the closing session, and (3) a Piaget presentation by Dr. David Elkind.

11a. STATE maximum number of participants to be assigned per instructional group.

In order to assure maximum participation, given the limitations of available equipment, the maximum group size was limited to 20 teachers. This number in turn determined the number of groups necessary at each grade level. These were:

Kindergarten	4 groups
1st grade	5 groups
2nd grade	5 groups
3rd grade	5 groups
4th grade	4 groups

14a.-14d. DISTINGUISH among participants employing grouping criteria.

The principal grouping criterion used for the ERIE workshops was that of the grade level at which each participant teaches. For the school faculty meetings, the participants were regrouped according to the school in which they taught.

18. CONSTRUCT a master schedule which includes the sequence for each workshop group.

The master schedule of the 1968 ERIE workshop is appended to this section as an example (Sample SC-1).

20. CONSTRUCT a separate schedule for each of the workshop groups.

Also included as an example, is the workshop schedule for the instructional group designated "A-1" (Sample SC-2). One of four kindergarten level groups, A-1 activities appear on Sample SC-1 at the far left as the first vertical column after the time designations. Sample SC-2 lists the daily time schedule, name of each session, room assignment number and instructor's name.

SAMPLE SC-1

	A				B					C					D					E			
	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4
8:30- 9:35	OPENING				OPENING					OPENING					OPENING					OPENING			
9:45-10:35	Intro to SAPA				O	O	O	Beh.Obj.		O	O	O	Beh.Obj.		Beh. Obj.			O	O	O	O	O	O
11:00-11:50	O	P_1	P_1	P_1	Intro to SAPA					Beh. Obj.			O	O	O	O	O	Beh.Obj.		I	I	I	I
12:00-12:50	P_1	P_2	P_2	P_2	Beh.Obj.			P_1	P_1	Intro to SAPA					LUNCH					LUNCH			
1:15- 2:05	LUNCH				LUNCH					LUNCH					Intro to SAPA					M_1	M_1	M_1	M_1
2:15- 3:05	P_2	O	Beh.Obj.		P_1	P_1	P_1	P_2	P_2	I	I	I	Hierarchy		M_1	M_1	M_1			Beh.Ob.		Beh.Ob.	
3:15- 4:05	Beh.Ob.		O	O	P_2	P_2	P_2	O	O	Hierarchy			I	I	M_2	M_2	M_2	I	I	Hier.		Hier.	
8:45- 9:35	Teach 1				I	I	I	Hierarchy		P_1	P_1	S/T	C	C	UN	UN	UN	Hierarchy		M_2	M_2	M_2	M_2
9:45-10:35	R_1	R_1	R_1	R_1	Teach 1			I	I	P_2	P_2	M_1	M_1	M_1	Hierarchy			P_1	P_1	Intro to SAPA			
11:00-11:50	Teach 2				R_1	R_1	R_1			C	C	M_2	M_2	M_2	P_1	P_1	P_1	P_2	P_2	P_1	P_1	P_1	P_1
12:00-12:50	R_2	R_2	R_2	R_2	Hierarchy			C	C		S/T				LUNCH					LUNCH			
1:15- 2:05	LUNCH				LUNCH					LUNCH					P_2	P_2	P_2	C	C	CP	CP	CP	CP
2:30- 3:30	ELKIND TALK				ELKIND TALK					ELKIND TALK					ELKIND TALK					ELKIND TALK			
3:45- 4:30	MEETINGS				MEETINGS					MEETINGS					MEETINGS					MEETINGS			
7:00- 7:45																				P_2	P_2	P_2	P_2
8:45- 9:35	R_3	R_3	R_3	R_3	Learning T.			Teach 1		T_1	M_1	CP_1	CP_1	UN	I	I	I	M_1	M_1	C	C	C	C
9:45:10:35	Hier.		I	I	Teach 2			R_1	R_1	R_1	M_2	CP_2	CP_2	P_1		CP_1	S/T	M_2	M_2	DO	DO	DO	DO
11:00-11:50	M_1	M_1	R_4	R_4	R_2	C	R_2	Teach 2		M_1	T_1	P_1	P_1	P_2	CP_1	CP_2		CP_1		FH	FH	FH	FH
12:00-12:50	M_2	M_2	Hier.		C	R_2	C	R_2	R_2	M_2	R_1	P_2	P_2	S/T	LUNCH					LUNCH			
1:15- 2:05	LUNCH				LUNCH					LUNCH					CP_2		C	CP_2	CP_1	Teach 1			
2:15: 3:05	I	I	M_1	S/T	M_1	R_3	M_1	Learn. T.		CP_1		C	UN	CP_1	Teach 1				CP_2	CV	CV	CV	CV
3:15- 4:05			M_2	C	M_2		M_2	S/T	S/T	CP_2	R_2	UN		CP_2	R_1	R_1	R_1	Teach 1		R_1	R_1	R_1	R_1
4:15- 5:00																				Content			
8:45- 9:35	CP_1	CP_1	C			M_1	R_3	M_1	M_1	R_2	UN	Teach 1			C	R_2	CP_1	Learn. T.		ID	ID	ID	ID
9:45-10:35	CP_2	CP_2	Learn. T.		R_3	M_2		M_2	M_2	Teach 2		R_1	R_1	R_1	R_2		CP_2	R_1	R_1	R_2	R_2	R_2	R_2
11:00-11:50	C	C		M_1	CP_1	S/T	CP_1	R_3	R_3	UN		Teach 2			Learning T.			S/T	S/T	Tech.		Tech.	
12:00-12:50	R_4	R_4	S/T	M_2	CP_2		CP_2	UN	UN	S/T	CP_1	R_2	S/T	R_2	LUNCH					LUNCH			
1:15- 2:05	LUNCH				LUNCH					LUNCH					S/T	C	R_2	R_2	R_2				
2:15- 3:05	S/T	S/T	CP_1	CP_1	R_4	R_4	R_4	R_4	R_4		CP_2	Learning T.			Teach 2			UN	UN	R_3	R_3	R_3	R_3
3:15- 4:05	Learn.T.		CP_2	CP_2	UN	UN	UN			R_3	R_3		R_2		R_3	R_3	R_3	Teach 2		S/T_1	S/T_1	S/T_1	S/T_1
4:15- 5:00																				S/T_2	S/T_2	S/T_2	S/T_2
8:45- 9:35	UN	UN	UN		S/T	CP_1	S/T	CP_1	CP_1	Learn.T.		R_3	R_3	R_3	R_4	S/T		R_3	R_3	Demon. Lesson			
9:45-10:35				UN		CP_2		CP_2	CP_2	R_4	R_4	R_4	R_4	R_4		R_4	R_4	R_4	R_4	R_4	R_4	R_4	R_4
11:00-11:50	CLOSING				CLOSING					CLOSING					CLOSING					CLOSING			

SAMPLE SC-2

A-1	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:45- 9:35	8:30 GENERAL SESSION Ford Aud.	TEACHING 1 Union Rec. Rm.	Wallace REPORTING 3 301	Ackerman COMMUNICATING-PREDICTION 1 201	Bellucci USING NUMBERS 202
9:45- 10:35	Wallace INTRO. TO SAPA Aud. B-102	Wallace REPORTING 1 301	Hall HIERARCHY 108	Ackerman COMMUNICATING-PREDICTION 2 201	FREE
BREAK					
11:00- 11:50	Fisk OBSERVING 101	TEACHING 2 Union Rec. Rm.	Fisk MEASURING 2 202	Currie CLASSIFYING 106	GENERAL SESSION Ford Aud.
12:00- 12:50	Wallace PLANNING 1 Union, Job Rm.	Wallace REPORTING 2 301	Fisk MEASURING 2 202	Wallace REPORTING 4 301	TEACHER SCHEDULE GROUP SESSION GROUP A-1
	LUNCH	LUNCH	LUNCH	LUNCH	
1:15- 2:05	Wallace PLANNING 2 Union Cafeteria	BREAK 2:30 Elkind THE TEACHER AND LEARNING PSYCHOLOGY Ford Aud.	Lazzaro INFERRING 207	Oakes SPACE/TIME 105	
3:15- 4:05	Hall BEHAVIORAL OBJECTIVES 105	3:45 MEETINGS	FREE	Ransom LEARNING THEORY Aud. B-103	
			7:30 Simon VALUES IN SCIENCE Ed. Ford Aud.	BAR-BE-QUE	

FLOWCHART SL

SITE LOGISTICS

With the help of the materials of this section, the reader should be able to

1. STATE a method for identifying and naming and appropriate workshop site.
2. NEGOTIATE with site officials for the use of their facilities.
3. PLAN the availability of both the instructional and the recreational facilities for a workshop.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, OR IF THE WORKSHOP SITE HAS ALREADY BEEN DETERMINED, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 72 (MICRO-TEACHING).

SITE LOGISTICS: FLOWCHART SL

Great care must be taken in the selection of a workshop site. The characteristics of the workshop site and facilities influence the attitude and receptivity of the participants. It is vital that site characteristics be matched against the physical requirements of the workshop program.

ERIE's fortuitous choice of a site contributed to the success of the workshops of 1967 and 1968. Ithaca College is situated above Lake Cayuga, one of the Finger Lakes in central New York. Two participant comments illustrate:

> The choice of location was excellent. The surroundings were beautiful. The whole atmosphere was one to encourage learning.
>
> Ithaca College campus was an excellent choice of place to hold this week's program. Its physical plant, new and functional buildings, pleasant cafeteria with a good choice of foods, made living here most pleasant.

Comments such as these, written by participants in evaluation reports, were not unusual. They point out the importance of the idiographic dimension in workshop planning.

Although it is not always possible to operate workshops in such pleasing environments, workshop planners should do all they can to insure that the site becomes a positive influence on each participant's thinking.

Milestone Tasks

1. Tentatively IDENTIFY and STATE the site requirements of the proposed workshop. (6-8 months prior to the workshop.)

The following questions should be given careful consideration as one proceeds to name the site requirements:

1. What amount and kinds of classroom space will be needed?
2. Will an auditorium be needed?
3. What cafeteria facilities are needed?
4. How much parking space will be needed?
5. What audio-visual equipment and/or facilities are needed?
6. Will dormitory facilities be needed?
7. What recreational facilities will be available?
8. Is the site to be located near an airport?
9. Is office space for the workshop staff available?

5. At least 6 months prior to workshop, CONTACT persons in charge of site and ARRANGE TO INSPECT best choices for site.

It is suggested that the following be included in discussions with site officials:

1. Describe your proposed use of the site.
2. Describe the tentative plans for the workshop.
3. How many participants are anticipated?
4. Describe the facilities which would be needed.
5. Would the site be available for such use? If so, what dates are available?
6. What costs are involved for using the facilities?
7. What types and quantities of audio-visual equipment will be available?
8. What is the nature of the insurance coverage?
9. State when you expect to be able to notify them about your decision to use or not to use the site.

7. NAME workshop site.

The workshop site should be conveniently located for the majority of participants. In addition to criteria already enumerated, consider the following additional factors:

1. Are sufficient parking spaces provided for staff and participants? Are they conveniently located?
2. Are the living and/or classroom accommodations comfortable, clean, and attractive?

3. Will it be necessary for participants to walk long distances in moving from one room (or building) to another? Can handicapped, or older persons manage well under these circumstances?

4. Are places provided for coats and/or umbrellas in case of inclement weather?

5. Is the cafeteria arrangement conducive to efficient serving, or will staggered meal times become necessary?

Maps for guiding participants and staff to the location site should be provided in advance. In the case of a campus site, it is helpful to provide the participant with a map showing the location of the various buildings and/or rooms. The use of posters or signs as a means of identifying buildings and rooms is suggested.

9. CONSTRUCT a letter of joint agreement, and review its stipulations.

It is important that a formal letter (or contract) of agreement should be negotiated with the site officials. ERIE's disappointing experience with recreational facilities, as described elsewhere in this document (see Non-Instructional Activities), illustrates the importance of a clear-cut agreement. It is essential that both parties clearly understand the full extent of their responsibilities.

The process of negotiating such an agreement forces the two parties to become fully cognizant of their own needs and responsibilities.

Consider, for example, the matter of insurance coverage. The workshop director needs to clearly understand the nature and extent of the coverage held by the site organization. Both parties need to be assured that if the existing coverage is limited, sufficient contingency coverage will be provided.

No attempt is made herein to describe all features of such an agreement. Instead, a sample of the preliminary letter of agreement is included (Sample SL-1). Attention is directed to the references which appear in this letter to a guarantee of funds. Some site officials cannot negotiate without such an agreement; others may not demand such a clause. It is recommended that the workshop director avoid such a "guarantee clause" if at all possible.

SAMPLE SL-1

ERIE
EASTERN REGIONAL INSTITUTE FOR EDUCATION
635 JAMES STREET, SYRACUSE, N.Y. 13203
TELEPHONE
474-5321
AREA CODE 315

December __, 19__

____________________, Chairman
Science Department
__________College
____

Dear_______________:

The Eastern Regional Institute for Education (ERIE) and the __________________________ Agency would like to situate a science inservice workshop for teachers upon the_____ College campus this summer. The total number of workshop participants and instructors would number at about 200 people. About 12 instructors would report to ______College and room and board there from 4:00 p.m., Friday, August 22, through 4:00 p.m., Friday, August 29. Approximately 90 teachers would report ______College at about 2:00 p.m., Sunday, August 24, and room and board there through 3:00 p.m., Friday, August 29.

At this time, ERIE would like _____College to reserve 50 rooms, each suitable for occupancy by two workshop participants or instructors, to handle the people who decide to live on campus during the workshop experience. Registration for this workshop will not be firm until May. There is no way now to predict accurately the number of campus residing participants and the number of commuter participants who will attend inservice activities. ERIE would appreciate the opportunity to increase the number of rooms reserved or decrease the number of rooms reserved depending upon actual registrations.

It is hereby requested that ______College provide cafeteria facilities wherein all workshop participants and instructors may enjoy lunch on Monday through Friday and an evening meal on Sunday. Approximately 200 people must be served at these six meals. Breakfast and dinner will also be a requirement for those participants who choose to live on campus. Although we are estimating 100 people in this group now, more accurate figures can be provided late this spring.

Sample SL-1 (cont'd)

ERIE agrees to guarantee ________College a sum of $500 ($5 per each campus resident participant) for the 50 dormitory rooms reserved for this workshop. In case there is no state-wide interest in the workshop, or in case proposal funds for the workshop are denied, thereby forcing a cancellation of the workshop, ___________College will receive the $500 guarantee for the unused rooms. Obviously, if _______College could rent the rooms to another organization at the last moment, ERIE would appreciate a release from its guarantee. It is further understood that the room and board charge for each workshop participant for the full five-day period (Sunday, 2:00 p.m. to Friday, 3:00 p.m.) will be a total of $38. The cost of lunch each day for commuter participants is understood to be $1.25.

Instructional space and auditorium space will be needed to carry on the workshop activities. The use of such audio-visual equipment as movie screens, 16 millimeter projectors, overhead projectors, and tape recorders is requested. Permission to use the recreational facilities of the college is also asked.

In summary, the essential workshop needs are as follows between August 22 and August 29:

1. Seven dorm rooms for double occupancy (August 22 to 29).
2. Forty-three dorm rooms for double occupancy (August 24 to 29).
3. Cafeteria service available for staff (August 22, 23, 24).
4. Cafeteria service for 100 people (evening of August 24).
5. Cafeteria service for 200 people (Lunch-August 25 to 29).
6. Cafeteria service for 100 people (Breakfast and dinner, August 25 to 29).
7. Sixteen instructional classrooms.
8. One auditorium and P.A. system.
9. One equipment storage space close to classrooms.
10. Open space for "micro teaching."

"Without Charge"

Sample SL-1 (cont'd)

11. Flexibility for more instructional space if needed.

12. Use of college audio-visual equipment.

13. Recreational facilities.

14. Willingness of the _______College to lower the number of "guaranteed rooms" or to reserve additional rooms depending upon registration figures submitted by ERIE.

ERIE, in turn, agrees to

1. Contribute a total of $38 for each participant who rooms and boards (three meals daily) on campus for the entire week.

2. Contribute $1.25 per person for each lunch consumed by commuter participants, OR

3. Reimburse ______College a total of $500 for all rooms reserved if the workshop does not materialize and the rooms are not rented to some other organization.

The administration of the proposed workshop will be the responsibility of Professor ___________of____________ College. Professor ________and the ERIE science program staff look forward to working with _______College. We hope that the requests contained in this letter are compatible with college policies. Please inform me of your decision relative to hosting the inservice workshop as soon as possible. A confirmation of the weekly room and board rate and the luncheon rate is needed by ERIE for immediate budget and site decisions. Rates have been "speculative" on the telephone so far. If there are questions you would like to raise, please telephone me collect at 315-474-5321.

Thank you for your interest in ERIE and in inservice education for teachers. I appreciate your willingness to consider our site requests.

Sincerely yours,

FLOWCHART MT

MICRO-TEACHING

With the help of the materials of this section, the reader should be able to

1. DETERMINE whether or not a micro-teaching experience is appropriate for use with workshop participants.

2. STATE a method for identifying and naming source(s) of children to be used during micro-teaching.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, OR IF MICRO-TEACHING ACTIVITIES ARE NOT TO BE INCLUDED IN YOUR WORKSHOP, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 92 (PUBLICITY AND REGISTRATION).

MICRO-TEACHING: FLOWCHART MT

ERIE workshop planners hold that "activity" and "personal involvement" are keys to meaningful workshops. It is one thing to listen to others talk about a new curriculum or new techniques, but quite another to have the innovation become an everyday part of a person's behavioral repertoire. ERIE workshop planners regard the direct personal involvement of workshop participants to be an essential component if a workshop is to have continuing impact upon its participants. Because of this, the ERIE workshops have consistently placed a premium upon trying to make each participant a full partner in the workshop's educational enterprise.

It is no easy matter to attempt to modify the teaching style of an experienced teacher; and, in most cases, the changes which do occur will come about slowly at best. Science--A Process Approach, for example, requires a teaching style which tends to be different from the style one often finds in use in classrooms. How does one begin to effect changes in teaching style? Those who planned the ERIE workshops believed that the problem had to be attacked on several fronts.

1. The teaching style employed by the workshop instructors should be exemplary.
2. The participant should be given an opportunity at the workshop to teach a lesson to a child (or children), hopefully employing the desired teaching style.

3. The participant should be allowed to observe at least one lesson being taught to children by an experienced teacher, either on film or videotape, or in person.

4. Participants should be given an opportunity at the workshop to analyze and discuss with each other, lessons taught by experienced teachers and lessons taught by their colleagues.

5. On returning to their schools, participants should be able to observe demonstration lessons taught by a consultant and/or have the consultant observe their teaching. In either case, the overall objective is to facilitate teaching of the innovative program as it was intended by its developers.

The micro-teaching experience was made an integral part of the workshop plan, primarily to attack items 2 and 4 above. It was considered highly advantageous to have each participant plan, teach, and discuss with others his first Science--A Process Approach lesson at the workshop. The ready availability of consultant assistance at the workshop, it was hoped, would help to make this first teaching experience a successful one. The micro-teaching experience was envisioned to provide several other advantages:

1. The use of but one or two children as subjects of the instruction allows the teacher to focus very closely upon the child's behavior, particularly as it is affected by what the teacher says and does.

2. The on-site planning and teaching of an exercise rather thoroughly acquaints the teacher with that exercise--its content and its materials. In addition, since the ERIE procedure had two teachers working together

> (a teacher-observer pair, with a subsequent exchange of roles), each teacher also was able to observe a second exercise--this one taught by a colleague. The class discussion of the exercises taught served to acquaint her with many of the exercises she is expected to teach during the school year.

For these reasons, the micro-teaching experience was considered to play a vital role in the workshop training of each participant.

To be fully effective, the micro-teaching experience should involve a thorough analysis of the lesson which was taught. This is usually accomplished through the use of videotaping techniques. When the teacher and her expert consultant(s) can simultaneously view the progress of a lesson, it becomes possible to "dissect" very effectively the lesson as it unfolds. In the absence of videotaping facilities, the possible audiotaping of lessons should be considered as an alternative procedure. This proved to function successfully in a number of workshops. The ERIE workshop planners unfortunately were not able to provide these more "total" kinds of micro-teaching experiences. The large number of workshop participants present at both workshops precluded the use of such procedures. However, this omission should not be regarded as an ERIE endorsement of its own procedure. ERIE recommends that the more complete micro-teaching experience be employed whenever possible.

Milestone Tasks

3a. STATE the amount of instructional materials to be made available for micro-teaching.

This is one of several factors that need to be considered carefully when planning and scheduling micro-teaching. For example, three groups of kindergarten teachers cannot be scheduled for simultaneous micro-teaching if equipment is available for two groups only. When stating the amounts of instructional materials to be used for micro-teaching, be sure to consider:

1. What materials per grade level are available?
2. What materials per grade level need to be ordered? Is funding available for the acquisition of these materials?
3. How many teachers per grade level will be micro-teaching at the same time?
4. How many teachers will be doing the same lesson at the same time, thereby requiring duplicate materials?
5. Will audio-visual equipment be needed? If so, in what types and quantities?
6. Who will be responsible for the materials?
7. Where will the equipment be stored?
8. What procedures will participants follow for obtaining materials and returning them to storage?

3b. STATE the amount of room space to be made available for micro-teaching.

The amount of available room space is another factor which must be taken into consideration in planning and scheduling micro-teaching. The number and type of rooms available will determine the number of participants who can be micro-teaching at the same time. It also will be necessary to have other rooms available that are convenient to the area where the micro-teaching experience will be conducted.

1. A room where the children can stay prior to and after the micro-teaching lessons.
2. A room where equipment can be stored and readily obtained for use by participants.
3. Restrooms should be conveniently located.
4. It is desirable to have available a playground or recreation room which the children can use between teaching sessions.
5. It is also desirable to have available a place where the children can be served a snack.

The ideal situation for micro-teaching would be to have the teacher, the observer, and the child (or children) located in a single room, free of others. If this is not possible, it is recommended that the number of groups per room be kept to a minimum. Children are naturally curious, and the additional noise from other groups tends to place the teacher at a distinct disadvantage.

5. IDENTIFY and STATE (a) the number, and (b) the grade level(s) of the pupils required for micro-teaching, based upon the number and type of workshop participants.

The number and grade level of children required for use in the workshop depends upon the number of persons who are to participate in micro-teaching. ERIE workshops have employed from one to three children per teacher in the micro-teaching experience. It is advantageous to provide "extra" children as a means of offsetting absenteeism.

If the workshop participants represent more than a single grade level, it will be necessary to determine the number of children required per grade level. The grade levels of the students required will depend upon the extent to which the children already possess curricular prerequisites. In the case of Science--A Process Approach, the AAAS Hierarchy Chart can be used to identify and name these prerequisites. If the children have had Science--A Process Approach instruction, pre-kindergarten children are best used for micro-teaching based upon Part A; children entering first grade can be used for Part B micro-teaching, etc. This is not advisable, however, in the case of children who have had no previous experience with Science--A Process Approach. In such cases, micro-teaching has been more successful using children who have already completed kindergarten for Part A micro-teaching; children who have completed first grade for Part B instruction, etc. This additional year of maturation and acquiring basic educational skills gives the child a stronger foundation for participating successfully in the micro-teaching.

6. IDENTIFY the number of staff members needed for pupil management and control.

7. CONSTRUCT a list of staff assignments, including personnel to (a) meet the children upon arrival at the workshop site, (b) provide children with snacks and/or recreation, and (c) maintain pupil records.

Responsibility for the children used in micro-teaching is a full-time assignment. It is imperative to provide ample adult help. It is also possible at times to employ Future Teachers of America (F.T.A. girls) or interested college students as aides. Among the duties of this staff are the following:

1. Meet the children each day upon their arrival.
2. Take attendance.

3. Keep the children occupied until the workshop participants come for them.
4. Take children to the lavatory.
5. Give the children recreation time and/or snacks if they are at the workshop longer than one hour.
6. Stay with the children until parents call for them.
7. Maintain appropriate records regarding each child.
8. Maintain a sign-out sheet which participants use to take the children for micro-teaching.

The records dealing with each child should include information such as the following:

1. The child's name.
2. His parent's name.
3. His home address.
4. His home telephone number.
5. The child's age and grade level.
6. Who to contact in case of emergency.
7. An indication of any allergies the child may have.
8. A record of micro-teaching lessons the child has been taught and by whom each lesson was taught.

The sign-out sheet should list the child's name, the time of sign-out, and the name of the participant taking the child for micro-teaching. The time the child is returned (and by whom) should be recorded, as well as which lesson he received.

Make certain that the person in charge knows the content of any correspondence which has been sent to families. This person also needs to know what arrangements have been made for obtaining the children's snack if one is to be provided, including the financial arrangements.

8. CONSTRUCT an organizational plan for the workshop micro-teaching experience.

Organizing and scheduling micro-teaching constitutes a major task. In addition to considering the number of participants that will be micro-teaching, the amount of available room space, and the amounts of materials available, it is necessary to schedule a session on the philosophy of the program as well as at least one planning session prior to micro-teaching. An analysis and/or reporting session(s) should be scheduled as a follow-up activity. Group interaction under the guidance of a competent person should prove to be a most beneficial experience.

Depending upon the time, scheduling, equipment, and room space, there are a number of ways that the micro-teaching experience can be organized. ERIE's procedure involved a partner system in which participant A teaches during teaching session 1, while participant B observes during that time. During a subsequent teaching session 2, participant B teaches while participant A observes.

Normally, lessons are taught over a period of several days. It is unnatural to present the material of an entire exercise during one micro-teaching session. If scheduling permits, it is desirable to have each participant assigned to micro-teaching sessions involving the same group of children over a period of more than one day. In this case, a lesson could be continued over more than one teaching session.

If videotaping facilities are available, several alternatives are possible. For example, a staff member might present an introductory set of activities to a group of children. The workshop participants could first observe this videotaped demonstration and as a follow-up to this, complete the exercise as one or more micro-teaching lessons. Demonstration lessons with video equipment must be handled with great care. If there are a large number of observers, it may be difficult to arrange things so that all can properly see and hear the demonstration. The use of videotaping facilities for the thorough analysis of micro-teaching sessions was discussed in the introduction to this segment of the workshop document. It is highly recommended that this procedure be used if at all possible.

13. MEET with school officials and DESCRIBE in detail to them the workshop plans for the use of children.

Most school personnel and parents, if given enough information concerning an educational venture of this sort, and if assured that the educational organization is reputable and responsible, will be pleased to have their children participate. The following kinds of information should be made known to the school officials:

1. The purpose of the workshop.
2. When and where it is to be held.
3. Who will be attending the workshop.
4. Why children are needed at the workshop.
5. Age and/or grade level of students needed.
6. When and where the students will be needed.
7. Who will be responsible for the children while they are at the workshop site.
8. How the children may be expected to benefit from their participation in the workshop activities.

It will probably be necessary to negotiate with school officials the nature and extent of the costs involved in providing children for micro-teaching. Among the costs most likely to be involved are the following:

1. Transportation of the children to and from the workshop site.
2. Mailing costs.
3. Secretarial time.

The copies of letters (Sample MT-1 and Sample MT-2) which follow serve to illustrate the administrative concerns which are inherent in such negotiations. They also provide the reader with information as to the costs which can be anticipated.

14. Cooperatively with the school, CONSTRUCT a letter to parents explaining the need for and proposed use of children in the workshop.

In addition to providing parents with an informational letter, it may be appropriate to construct and make use of some sort of parental permission form. For the reader's convenience, copies of the following letter and forms, used during the 1967 ERIE workshop, follow:

1. Letter addressed to parents (Sample MT-3).
2. School travel permission form (Sample MT-4).
3. Special workshop travel permission form (Sample MT-5).

16. CONSTRUCT and MAIL a letter to parents which (a) expresses appreciation, (b) confirms date regarding time, place, etc. for the workshop. (2 weeks prior to the micro-teaching.)

It is desirable to send to parents, just prior to the opening of the workshop, a letter or memorandum which:

1. Thanks them for the anticipated cooperation, and
2. Reminds them of what it is they have agreed to do.

The memorandum which follows (Sample MT-6) was used for this purpose during the 1968 ERIE workshop. Note that unlike the 1967 workshop, that of the following year did not involve the busing of pupils to the workshop site. It was in this case possible to acquire children from a school system close enough to the workshop site to make the busing of pupils unnecessary. If it is possible to operate in this way, the costs of providing bus transportation can be avoided.

An alternative procedure involves the use of a letter of appreciation sent to the local newspaper for publication. A copy of such a letter is appended as Sample MT-7.

SAMPLE MT-1

July __, 19__

Dr. __________
ERIE
635 James Street
Syracuse, N.Y. 13203

Dear ________:

This is to confirm our telephone conversation of July 10. I will be most happy to make the necessary arrangements for the ERIE Project to have three groups of 45 children for:

Tuesday - August 29, 5 and 6 year-olds
Wednesday - August 30, 7 year-olds
Thursday - August 31, 8 year-olds

Transportation can be arranged as follows--per our school extra driving schedule:

Driver only 1st hour--$5.00
Each additional hour--$2.50

Tuesday - 8:00 a.m. to 1:00 p.m. --5 hours...	$15.00
Wednesday - 8:00 a.m. to 12:00 Noon--4 hours...	12.50
Thursday - 8:00 a.m. to 12:00 Noon--4 hours...	12.50
Total Driver Salary	$40.00
Bus - $15.00 per trip	
Tuesday, Wednesday, and Thursday......	$45.00
Total Transportation	$85.00

If this sounds satisfactory please confirm.

Sincerely yours,

SAMPLE MT-2

July __, 19__

Dr. ______________
ERIE
635 James Street
Syracuse, N.Y. 13203

Dear ___________:

As I am beginning to work on these groups of children for the __________College Project, a couple of questions come to mind.

Basically, I will have no trouble in locating the 6, 7, and 8 year-olds. All of my 5-year-olds, however, will be incoming kindergarten students this fall. Would you like as many as half in this category? In that these children have not attended school or tzavelled on a school bus, I feel I would need a couple of high school girls to supervise the before-eight-o'clock loading on the bus to and from __________and waiting for the parent pick-up, etc. after.

Should you finance this or shall we try to involve partents--gratus, if possible?

I will probably get involved in mailing out information--responsibility and liability information, etc. How will these mailing costs be handled? Do you have stamped envelopes, etc. or shall I submit vouchers?

What about secretarial time and reimbursement? I would assume a minimum of five days to handle all details--lists, telephoning, typing, etc. There is plenty of time at this writing but I may have to rearrange my secretary's vacation or involve someone else if she is otherwise committed time-wise.

Very truly yours,

SAMPLE MT-3

__________ELEMENTARY SCHOOL

Building #2

August __, 19__

Dear ________________.

As you may already know, the Elementary School has been selected as one of twenty schools in New York and Pennsylvania to work with a new science curriculum.

About 200 teachers from these schools (22 from grades K-3 - _____________) will attend ___________College the week of August 27th for training.

Dr. __________, the Project Director, asked if about 135 children from our district would be available for demonstration classes. We will need for:

August 29th - 45 - 5 and 6 year-olds
August 30th - 45 - 7 year-olds
August 31st - 45 - 8 year-olds

Each group would travel on a ______bus with regular driver. Children would be driven from Building #2, leaving at 8:00 a.m. and be returned by 12:30 p.m. on Tuesday and about 11:30 a.m. on Wednesday and Thursday.

If you would like your child to participate in this opportunity, kindly fill out the enclosed sheets and return to my office at once.

Very truly yours,

SAMPLE MT-4

________________ELEMENTARY SCHOOL

TRAVEL PERMISSION FORM

Date ________________

I understand that field trips away from the school grounds are part of the regular school program, and, in
son
order that my daughter ________________________ may
(name) his
participate in such trips, I hereby consent to her attendance at such times and under such conditions as may be prescribed by the school.

When the place to be visited is beyond walking distance, I give permission for my child to ride in a school bus driven by a regular bus driver.

Signed ______________________
Parent or Guardian

As amended 8/2/67
______________, School Attorney

SAMPLE MT-5

________________ ELEMENTARY SCHOOL

Special Science Project Trip

I hereby give permission for my child ________________ to attend a one-half day workshop with elementary teachers.

This workshop is conducted by E.R.I.E. (Eastern Regional Institute for Education) at ________College on August 29, 30, and 31 and has Board of Education approval.

Transportation will be furnished by our school bus and drivers.

5 and 6 year-olds only - August 29
7 year-olds - August 30
8 year-olds - August 31

____

Parent's Signature

SAMPLE MT-6

EASTERN REGIONAL INSTITUTE FOR EDUCATION

TO: Parents of 1st, 2nd, 3rd,
4th Grade Children Attending
ERIE Sponsored Science Workshop

FROM: Director of Science Curriculum Program

DATE: August 13, 1968

Thank you for enrolling your child in the Science--A Process Approach Workshop. May we ask you to pick up your child at 12:00 (noon) or at 4:00 p.m. (as close to those hours as possible)? The two ladies who supervise the children must each lunch between 12:05 and 12:45. At 4:00 p.m. they both have other workshop duties. We appreciate your help in this matter. It is a pleasure to work with your child in small groups, large groups, and individualized instructional settings.

Sincerely,

Director
SCIENCE CURRICULUM PROGRAM

SAMPLE MT-7

September 13, 1968

Editor
Ithaca Journal
123-125 West State Street
Ithaca, New York

Dear Sir:

The Eastern Regional Institute for Education (ERIE) wishes to extend its thanks to the parents of the 130 schoolchildren and to the children themselves who participated in the *Science--A Process Approach* Workshop held at Ithaca College from August 12 to August 30, 1968. A teaching workshop without students can be a rather unrealistic exercise, and the cooperation given was sincerely appreciated. We hope only that the children benefitted from and enjoyed being at the workshop as much as the ERIE staff and teachers from 65 New York State and Pennsylvania School Districts enjoyed having them there.

A sincere "thank you" is also expressed to the Ithaca Public School System staff (central office personnel, principals, teachers, and secretaries) who so efficiently arranged for the participation of the children in the *Science--A Process Approach* Workshop. The Eastern Regional Institute for Education acknowledges the major workshop contributions made by the children, parents, and educators of Ithaca.

Sincerely yours,

James M. Mahan
Director
Process Curriculum
Installation Program

JMM:a

FLOWCHART PR

PUBLICITY AND REGISTRATION

With the help of the materials of this section, the reader should be able to

1. CONSTRUCT and execute plans for workshop registration procedures.
2. CONSTRUCT and execute plans for a workshop publicity program.

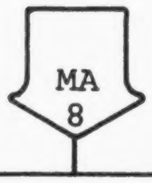
IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, OR IF THE WORKSHOP REGISTRATION IS PREDETERMINED AND/OR NO FORMAL REGISTRATION PROCEDURES ARE DEEMED NECESSARY, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 127 (COLLEGE CREDIT PROCEDURES).

PUBLICITY AND REGISTRATION: FLOWCHART PR

Publicity and registration are important (1) to assure that participation is sufficient to make the workshop economically feasible, and concurrently, (2) to solve the logistical problems associated with the arrival and departure of the participants. The flowchart and related illustrative material are provided to indicate how to prepare information about workshops as well as how to assist participants upon their arrival. Since many activities in this sequence must be completed in advance, the need to allow sufficient lead time is of critical importance. Subsequent activities may be adversely affected if this is not done.

Flowchart PR is composed of three sections. (1) Items 1-20a present procedures for informing prospective candidates and subsequent procedures to prepare for the arrival and registration of participants. (2) Registration and hospitality arrangements (Items 20b-24) provide an excellent opportunity to demonstrate to participants that the workshop has indeed been well-planned. Long registration lines and confusion over room assignments and meal tickets give an initial negative impression, the effects of which may be difficult to overcome. (3) Items 25-32 are primarily concerned with providing information to the press on the workshop; Interesting, well-documented, and well-written news releases and features are welcomed by the media and can be of immense value in providing a positive influence for future efforts.

Milestone Tasks



(Flowchart PR)

5a. CONSTRUCT a "packet of materials" to be mailed to registrants. Include maps, information regarding housing, recreation, items to bring to the workshop, etc.

Samples of two items included in a packet for participants attending the ERIE Science--A Process Approach workshops in August, 1968 are appended to this section:

Sample PR-1	An informational letter addressed to participants.
Sample PR-2	A detailed overview of the workshop instructional program.

5b. CONSTRUCT registration cards and/or other registration materials per plans.

It is recommended that the registration card be multipurpose, of simple design, preferably printed on heavy stock, and perforated for easy separation and distribution to various personnel. In the case of large workshops, consideration should be given to the use of "Royal-McBee" type cards for ease of sorting. A facsimile of this card is provided at the end of this section (Sample PR-3). The format of the registration card used by ERIE in 1968 is also appended (Sample PR-4).

For the 1968 ERIE workshop a form was employed to record participant responses as to general background information, travel plans, graduate credit desires, as well as a questionnaire dealing with elementary science (Sample PR-5).

Requests for information sent to participants in advance of the workshop should be accompanied by a self-addressed stamped envelope.

5c. CONSTRUCT a Fact Sheet regarding workshop. Include (a) location (b) dates, (c) eligibility requirements, (d) purpose of workshop, (e) costs involved, and (f) deadline for registration.

The use of a "fact sheet" can greatly facilitate the formulation of informational letters. The data therein provided need not be duplicated in the letters which must be prepared.

9. CONSTRUCT copy for an informational letter to interested persons. (Include response cards for requests for further information.)

For the reader's convenience, a sample informational letter to school administrators is provided (Sample PR-6).

6. CONSTRUCT evaluation items dealing with publicity and/or registration procedures--for inclusion on questionnaires, etc.

Attempts to determine the effectiveness of publicity may well ask participants questions similar to the following:

1. How did you first become aware of this workshop?
2. Did you see any of our "ads" in professional journals? If so, which ones?
3. Have you any suggestions for improving our publicity procedures?
4. What was your reaction to our registration procedure?
5. Suggestions for improvement.

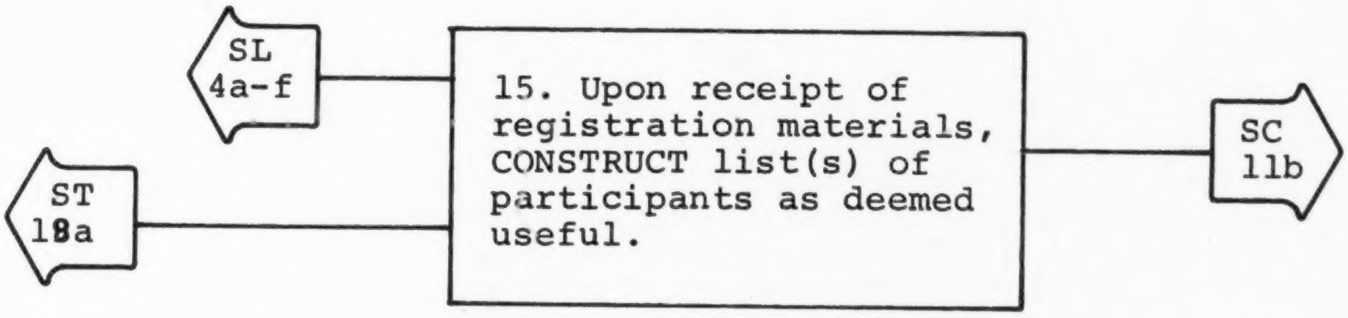
7. CONSTRUCT copy for press advertisement designed to publicize the workshop. (Ad to include a reply coupon for information requests.)

Copy for the newspaper or journal advertisements (see Sample PR-7) should be general rather than specific. The newspaper or journal one selects should reach the desired audience, and the aim of the advertisement should be to secure interest. A coupon may be used to request further information. Since workshops are generally aimed at professional groups, it may be desirable to use direct mail in addition to, or in place of, the advertisement. A response card should be included in the direct mail for the reader's convenience.

13. CONSTRUCT a news release for local newspapers.

14. SEND copy for a personalized news release to registrant's local newspaper approximately 2 weeks prior to workshop.

The news release should be written for use in either metropolitan daily and/or local weekly papers. The principal function of the release is to provide the local school district with an item which identifies their school as one in which steps are being taken to improve the school program and/or to upgrade teacher competency.



15. Upon receipt of registration materials, CONSTRUCT list(s) of participants as deemed useful.

This item represents a key step which leads directly to items in the staffing, scheduling and site logistics flowcharts. Through pre-registration, much of the clerical work so necessary to the successful functioning of a workshop can be done in advance. Class lists and dormitory assignments may be formulated, meal arrangements determined, mailings may be set up for local newspapers, as well as a host of other details.

20b. MEET participants at terminal(s), and TRANSPORT them to the workshop site.

It is desirable that participants be met upon their arrival. This small consideration will make participants feel welcome and will establish a positive tone for the entire workshop.

21a. CONSTRUCT a schedule of staff assignments to registration tasks.

Time and staff requirements for registration procedures depend upon advance planning. Pre-registration can take care of most room assignments, meal schedules, class groupings, etc. This reduces the need for staff at the registration table when the participants arrive, making it possible for more staff to be on hand to answer questions, to distribute room keys and name tags, and to be of general assistance as needed. Provision must be made to accommodate late arrivals who show up after the registration desk is closed. A sample schedule and other information pertinent to registration are appended (Sample PR-8).

25. IDENTIFY and NAME staff **member(s)** responsible for producing a post-workshop journal report.

Some workshop activities, especially those in which pupils are involved, provide excellent material for photography. Pictures will be useful in any plans for writing feature articles for newspapers or journals.

It should also be noted that funding agencies generally require or expect to receive a post-workshop report.

SAMPLE PR-1

ERIE
EASTERN REGIONAL INSTITUTE FOR EDUCATION
635 JAMES STREET, SYRACUSE, N.Y. 13203
TELEPHONE
474-5321
AREA CODE 315

August 1, 1968

Dear Science Workshop Participant:

As the time for the Ithaca Workshop rapidly approaches, you probably have questions which need to be answered. The purpose of this letter is to outline your week at Ithaca College and, hopefully, to anticipate and answer some of your questions.

First, I would like to welcome you to the ERIE Science Curriculum Program. We at ERIE are looking forward to meeting you at Ithaca and to working with you in the coming school year. It will be an opportunity for unique experiences, professional growth and many new friendships. We think you will find the large staff of workshop consultants to be both friendly and stimulating.

As you know, during the workshop you will be staying in dormitories on the Ithaca College Campus. Each dormitory room accommodates two persons. All linen and blankets will be furnished with the exception of face cloths. Maid service will not be available. Overhead lights are dim in the dorm rooms and you could bring a small desk lamp for reading purposes.

Everyone, (some 400 K-4 teachers and about 80 administrators, plus guests) will be arriving during the afternoon and evening hours Sunday, August 25. Upon arrival at the Ithaca College Campus, please report to the registration desk in the lobby of the College Union Building. Members of the ERIE staff at the desk will have a registration envelope filed under your name. This envelope will contain your room key, identification badge, meal tickets, instructions concerning teacher manuals, class section assignment, etc. This desk will be the center for information throughout the week. An evening meal will be served to those who have arrived by 6:00 p.m.

Sunday evening a reception will be held for everyone from 8:00 until 10:00 on the quadrangle (lawn) near the Student Union Lounge. During the reception and days to follow you will have an opportunity to meet and talk with other project teachers and with the ERIE Science Program staff. At the reception you will also meet visiting

Sample PR-1 (cont'd)

consultants from several states and other members of the ERIE general staff. A workshop program will be distributed that also lists the names and school addresses of all workshop participants for your reference in the days and weeks ahead.

Monday morning will begin with a general session which will include formal introductions, general information, and a speech by Dr. Elizabeth Simendinger, President of the National Science Teachers Association. At this time, you will join one of 23 groups based on the grade level that you teach. Through the remainder of the week your group will attend 23 fifty-minute classes presented by different members of the ERIE staff and consultants. The classes will include activities involving Science--A Process Approach skills, opportunities to manipulate instructional materials, films and discussions concerning relevant learning psychology, "one to one" micro-teaching sessions and other special classes. On Wednesday night Dr. Sidney Simon will make a presentation to all on "Values in Science Education." Dr. Simon's program is a regular part of the workshop and you will find it most engrossing. Class schedules showing rooms, times, instructors, and groups will be passed out upon your arrival.

On Tuesday afternoon teachers from ERIE pilot schools will have an opportunity to meet with their principals in faculty meetings beginning at 3:45. At this time these teachers may wish to discuss questions which have arisen. They may also consider anticipated problems for the upcoming school year and how Science--A Process Approach is going to fit into a particular classroom. Immediately following the faculty meeting, ERIE Science Program staff members will meet with pilot school teachers to answer questions, consider problems, and to outline the reports and data collection that constitute a part of this science installation program. While these faculty meetings are going on, teachers and administrators from "non-pilot" schools (The New York State and Pennsylvania Proposal supported participants) will be scheduled for meetings with science supervisors from their respective state education departments. ERIE personnel will also be available to answer questions at these meetings.

Monday, Wednesday, and Thursday classes will be completed by about 4:30 p.m. We do not plan to give you lengthy assignments for each evening, thereby providing you with some time to enjoy the recreational facilities available as well as to visit some of the sights in the

Sample PR-1 (cont'd)

Ithaca area. The recreation facilities available on the Ithaca College Campus include: an outdoor swimming pool, tennis courts, horseback riding ($2.00 per hour, until dusk), bowling, and billiards. We are negotiating with sponsors of bus tours and hope to provide you with an opportunity to sign up for one or more tours of the local region. Please give a preliminary indication of tour interest.

Dinner will be served each night from 5:00 to 6:30 p.m. Attendance will not be taken and you may feel free to visit the local restaurants. However, Thursday evening we sincerely hope that you will join us for an outdoor chicken barbecue.

The workshop will conclude early Friday afternoon (about 1:00 p.m.) allowing time for everyone to be well on the way home before the weekend traffic becomes heavy. It is essential that you be present all of Friday morning.

We have decided not to send K-4 teachers any advance assignments or reading materials. Administrators will be sent several articles that supply valuable background material on Science--A Process Approach and on the challenge of educational change. We ask the administrators to please read these articles in advance of the workshop and to bring them to Ithaca.

A travel information form has been enclosed with this letter. On the form you will notice a few "continuum" questions pertinent to Science--A Process Approach. Please fill out the travel portion and the continuum portion of the form and return it to ERIE immediately. Your frank reaction to these questions will help us to plan much better workshops for future years. Thank you for your help.

Clothing?? Casual comfortable clothing will be appropriate at all times. Our first social reception on Sunday night will be casual also. Don't forget your favorite recreation when you plan your workshop wardrobe. By the way, last year blankets were rare in the dorms and the nights were cool. Ithaca College assures us that they have one blanket per bed on hand this year.

I hope that this letter has answered some of your questions without creating as many new questions. If you find that unanswered questions still remain, please feel free to call or write. Everyone has questions about how they get hold of the proper Teacher's Manual. Please read

Sample PR-1 (cont'd)

the Teacher Manuals enclosure carefully and find the information you need. Other questions arise concerning graduate credit for this workshop experience. Cornell University will offer from one to three hours of graduate credit ($50 per hour). Each participant will have an opportunity to talk with a Cornell representative and to officially register for credit as per the conditions set forth by Cornell. ERIE will not be involved in graduate credit arrangements.

Again, I am very happy that you are participating in the ERIE Science Workshop. I hope that your week-long experience will be very satisfying to you.

For the ERIE Staff,

James M. Mahan
Program Director
SCIENCE CURRICULUM PROGRAM

JMM:tc
Enclosures

SAMPLE PR-2

OVERVIEW

of the

SCIENCE--A PROCESS APPROACH WORKSHOP

Sponsored
by the
SCIENCE CURRICULUM PROGRAM
of the
EASTERN REGIONAL INSTITUTE FOR EDUCATION
at
Ithaca College
from
August 25-30, 1968

SAMPLE PR-2

ERIE SPONSORED
ITHACA COLLEGE SCIENCE WORKSHOP

(August 25-30, 1968)

The Ithaca College Science Workshop has been designed specifically for those K-4 teachers in the ERIE Science Program who will be teaching AAAS Science--A Process Approach in their classrooms during the school year, 1968-69. Since the workshop and follow-up inservice sessions actually involve as much classroom time as a normal college course, we are attempting to offer the workshop and inservice experience for college credit (Cornell University) to any teacher who wishes to apply for such. The workshop also has been made available to New York State and Pennsylvania K-3 teachers under the provisions of proposals funded by the education department of both states. An outline of the course follows:

THEORY & PRACTICUM IN ELEMENTARY SCHOOL SCIENCE

A. Course designed specifically for participants in the ERIE-AAAS Science Program.

B. Study of science instructional methods will be accomplished in two phases:

    1. An intensive week-long study of the objectives, content, philosophy and teaching methods of Science--A Process Approach through small group instruction and planned teaching experiences. Topics will include:

        a. The uses of behavioral objectives in instruction.

Sample PR-2 (cont'd)

   b. The processes of science including observation, measurement, inference, classifying, using numbers, using space/time relations, communication and prediction. In addition to the eight simple processes covered for the K-3 teachers, four integrated processes will be presented to the ERIE pilot school fourth grade teachers. These integrated processes are interpreting data, controlling variables, defining operationally, and formulating hypotheses.

   c. Analyses of filmed teaching sessions of Science--A Process Approach.

   d. Analysis of the rationale for teaching science in the elementary school--studies of instructional hierarchies and child behavior.

   e. Planned teaching experiences using Science--A Process Approach materials.

2. A year-long trial of the Science--A Process Approach materials in the classroom with biweekly in-service meetings directed by the staff (pilot school K-4 teachers only). Content will include:

   a. The study of classroom changes using behavioral objectives and process approach instruction.

   b. The child's transfer of process knowledge into other areas of learning.

   c. Evaluating process approach instruction.

The Workshop is scheduled to include 23 50-minute sessions (K-3) and 29 sessions (4th).

Sample PR-2 (cont'd)

K-3

- 1 opening
- 1 intro SAPA
- 8 micro-teaching
  - 2-planning
  - 1-teaching
  - 1-observing
  - 4-reporting
- 2 behavioral obj. & hierarchy
- 9 process sessions
- 1 learning theory
- 1 closing

23

K-4

- 1 opening
- 6 simple process sessions
- 4 integrated process sessions
- 2 behavioral obj. & hierarchy
- 1 intro to SAPA
- 8 micro-teaching
  - 2-planning
  - 1-teaching
  - 1-observing
  - 4-reporting
- 2 electricity content
- 2 force content
- 1 microscope-technique session
- 1 teaching for inquiry
- 1 closing

29

In addition to the class sessions, are two special meetings. Tuesday afternoon Dr. David Elkind will speak on "The Teacher and Learning Psychology," and on Wednesday evening, Dr. Sidney Simon will speak on "Values in Science Education." The conference will open with an address by Dr. Elizabeth Simendinger. Dr. Simendinger will discuss "The Importance of the Elementary School Teacher in Science Education."

Since the workshop is designed specifically to cover sub-topics a, b, c, d, and 3 of Section B.1., it would be appropriate for us to consider each of these five sub-topics:

a. Behavioral objectives are an integral part of Science--A Process Approach. Each exercise begins with a statement of the behavioral objectives for that

Sample PR-2 (cont'd)

exercise. Instruction in behavioral objectives at the workshop will be in large groups, using an audio tape, overhead projector, film strip, and handouts.

b. Eight simple processes have been identified by the writers of Science--A Process Approach. These process skills are developed during the first four years of the curriculum (Parts A, B, C, D). Each teacher will be introduced to each process in small groups (less than 20). The content and teaching strategies employed in each process session will vary. However, the structure of each process session is the same as the structure of the exercises the teachers will be teaching during the school year (i.e., statement of behavioral objectives, a series of activities, and an appraisal at the end of the session).

c. Each group of teachers also will view a filmed Science--A Process Approach lesson. The film will be shown early in the week, thereby providing a common background for upcoming experiences and discussion.

d. One class session will be devoted to the significance and meaning of hierarchial learning and its relation to behavioral objectives. Following Dr. Elkind's presentation, each group will meet for a discussion and film relating the works of Piaget and other learning theorists to classroom instruction.

e. An important part of the workshop is the micro-teaching sequence, which comprises eight class sessions. During the micro-teaching sequence, each teacher will have an opportunity to plan and teach one exercise and make an analytical report to teacher colleagues. In addition, each teacher will have an opportunity to observe another exercise being taught by a fellow teacher in a one to one situation.

Sample PR-2 (cont'd)

There will be 23 groups of teachers going through the workshop (4 kindergarten, 5 first grade, 5 second grade, 5 third grade, 4 fourth grade). Because of scheduling commitments, each group (necessarily) will go through the workshop in a different sequence. However, an effort has been made to insure that teachers receive certain prerequisite exercises. Attached is a schedule of all sessions for all groups.

Instructor assignments have been made based on backgrounds, interests, expertise, time allotments and the provision of children from the Ithaca Schools (130 volunteer children). Attached is a list of ERIE staff and visiting consultants that will be teaching the various lessons.

In order to evaluate some of the principal objectives of the ERIE Science Program and to evaluate the success of the Ithaca College Science Workshop, an Evaluation Questionnaire has been constructed (see attachment). This questionnaire will be completed by the teachers at the close of the workshop and then processed by the ERIE staff. The evaluation questionnaire states major workshop objectives, relates instructional activities to specific objectives, indicates staff concern for appropriate teaching style or performance, and lists the entire consultant staff.

Sample PR-2 (cont'd)

The K-4 workshop is the culmination of a three-week series of workshops at Ithaca College. Beginning August 11, two 2-week workshops will be held. One workshop will train teacher-leaders as change agents within their local school systems. Parallel with the Teacher-Leader Workshop, will be an NSF supported two-week workshop for 20 science educators from different colleges within the ERIE region. The NSF workshop is part of a plan to develop a Regional Action Network (RAN) which will aid other school systems within the ERIE region to install and adopt Science--A Process Approach or other innovative curricula.

Ten NSF participants and the teacher-leaders will stay for a "practicum" during the K-4 workshop. The third week will provide additional experiences for the NSF participants and teacher-leaders as well as facilitate their making valuable contributions to the K-4 workshop participants.

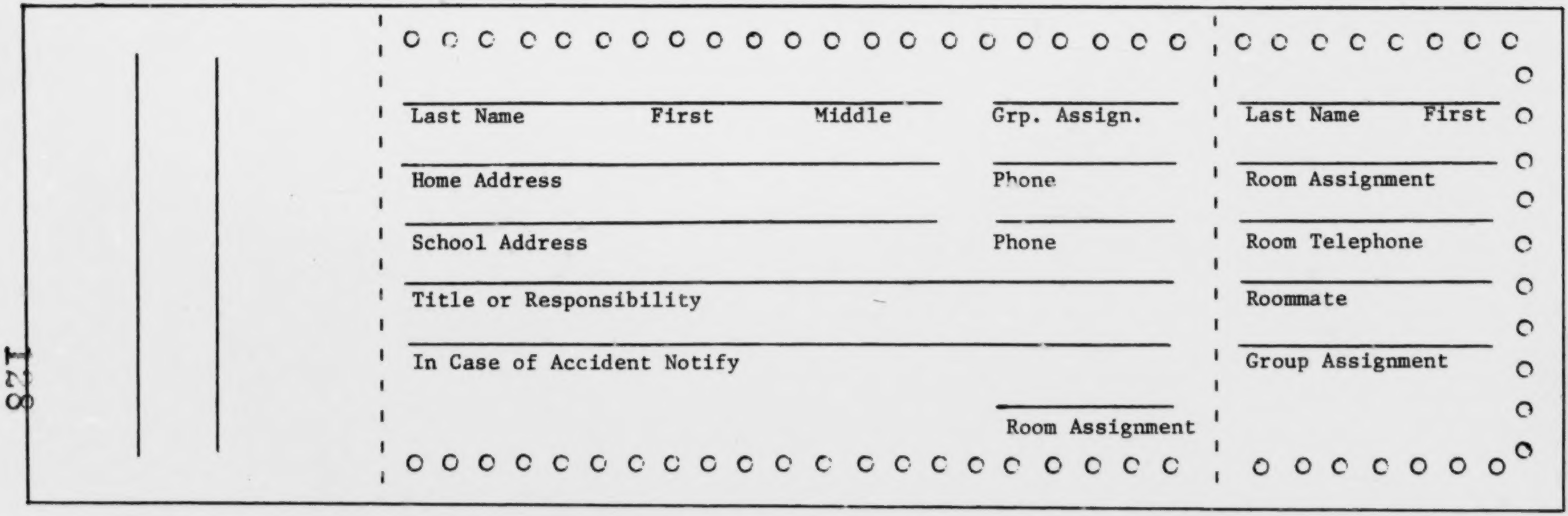
Along with the K-4 workshop, there will be a three-part workshop for administrators. Administrators will consider the rationale and processes of Science--A Process Approach. They will also study the pervasive role of evaluation in educational change, and the effects of problem solving methods and organizational health on educational change. Attached is an agenda for the Administrators' Workshop.

Sample PR-2 (cont'd)

The Science Program staff gratefully acknowledges the cooperation and assistance received from the Pennsylvania Department of Public Instruction, the New York State Education Department, the National Science Foundation, the American Association for the Advancement of Science, Cornell University, Ithaca College, and the Ithaca Public School System. Interagency collaboration has made possible this extensive inservice education endeavor.

SAMPLE PR-3

IDENTIFICATION CARD　　REGISTRATION AND SCHEDULING CARD　　HOUSING CARD



Last Name　First　Middle　Grp. Assign.

Home Address　Phone

School Address　Phone

Title or Responsibility

In Case of Accident Notify

Room Assignment

Last Name　First

Room Assignment

Room Telephone

Roommate

Group Assignment

As the card is received, it goes immediately to scheduling where it is "McBee" punched around the outside edge. Group assignment is made and Identification and Housing cards as well as Schedule card are stamped with the group assignment letter.

The Scheduling card is filed alphabetically by assigned group. It may be further sorted by using the punched holes around its periphery. Housing and Identification are cards sent to housing section where a room assignment is made. The room number is marked on the back of the Identification card as well as on the Housing card. The Identification card is placed in a badge holder and filed alphabetically with a room key for issuance at the registration table.

SAMPLE PR-4

ERIE Registration Card--Summer Workshop, 1968

Last	First	Middle	Mrs., Miss, Mr.	Grade

School District

A. ___ERIE pilot teacher
   ___ERIE pilot admin.
   ___N.Y. LOIS teacher
   ___N.Y. LOIS admin.
   ___Pa. DPI teacher
   ___Pa. DPI admin.
   ___ERIE staff
   ___Workshop consultant
   ___NSF professor
   ___Teacher-Leader
   ___Family member

B. Room & Dorm assignment ____-____

C. Class section assignment _______

D. Received key & name tag, took folder, received class section assignment ☐yes ☐no

E. Received proper teacher manual instructions ☐yes ☐no

F. Entitled to travel reimbursement form ☐yes ☐no

G. Reimbursement form given ☐yes ☐no

Ask on 3 & 4 below, then circle 5 if necessary.

Teacher Manual Supplied Through:

1. ERIE pilot purchases
2. ERIE LOIS purchases
3. Brought from pilot building
4. Brought from school district

5. Rent/Buy from Xerox

Signature ______________ Date_______

SAMPLE PR-5

EASTERN REGIONAL INSTITUTE FOR EDUCATION

Ithaca College Science Workshop Information FORM

Travel Arrangements and Science Continuum Data

ERIE Pilot and Non-Pilot School Participants are asked to please return this form to ERIE immediately

Return to: Dr. Wayne Ransom, ERIE
635 James Street, Syracuse, N.Y. 13203

The ERIE staff requests the following travel information so that provisions may be made to man enough registration booths to serve large numbers of arriving workshop participants. Parking spaces will be requested from Ithaca College based on this form. Taxi and bus companies will be informed of arrival times of large groups of people.

Check one box: ☐ I am a teacher. ☐ I am an administrator or supervisor.

A. Your Name: ____________________

B. Home Address: ____________________
Street City
____
State Home Phone: (area code)

C. Name of School District: ____________________

D. Name of School Building: ____________________

E. Grade You Teach: ____ or Grades You Administrate (Supervise) ____

F. Number of years of experience: ____ (Put "0" if beginning teacher.)

G. Are you a teacher or administrator in one of the ERIE Science Program Pilot Schools? (Circle) Yes or No

H. If you are not a member of the faculty of an ERIE Pilot School, for how many years has your school building curriculum included Science--A Process Approach? ____________________

- -

Sample PR-5 (cont'd)

TRAVEL PLANS

1. I plan to arrive at Ithaca on Sunday, August 25, at ____________p.m.

2. I plan to arrive by:
   ___AUTOMOBILE
   ___AIR
   ___BUS
   ___OTHER (describe)______________

   I will fly on ______________Airlines, on Flt. No._______, arrival time of_______or I will ride __________________ Bus Lines with arrival time of ______.

3. Check one box and fill in necessary blanks:

   ☐ I plan to travel alone.

   OR

   ☐ I plan to travel in an auto with the following teachers and/or administrators who also are attending the workshop (full names):

   (1)______________________ (3)______________________

   (2)______________________ (4)______________________

4. In case of emergency contact:

   Name:____

   Address:______________________________________

   ____

   ______________________Phone:__________________
   (area code)

GRADUATE CREDIT DESIRES
(Open to teachers only)

5. ☐ Cornell U. Graduate Credit: Presently, I am interested in talking to a Cornell representative about earning graduate credit in connection with the workshop. I would like to earn ___ hours of credit.

Sample PR-5 (cont'd)

OBSERVATIONS ON SCIENCE--A PROCESS APPROACH

The candid responses of teachers and administrators on the following items will lead to more effective educational service by ERIE. All of your responses will remain confidential.

On all continuum questions below, please indicate your answer (the way you personally feel about the particular topic) by circling the number that comes closest to representing your present view.

EXAMPLE ITEM A

As a site for a workshop, Ithaca College is:

Extremely beautiful & inspiring	1	②	3	4	5	6	7	Uninspiring and drab

You will notice that I have circled number "two" on the continuum. "Two" stands for a beautiful and inspiring workshop site. Many participants will probably agree that a low number should be circled for Example A. Ithaca College is beautiful!

Now, please circle your frank response to each item below. Teachers should respond relative to their classroom and administrators relative to their building or district.

I. Right now, the degree to which I understand the nature and objectives of the type of elementary school science curricula known as Science--A Process Approach (SAPA) is:

Have extensive knowledge about SAPA	1	2	3	4	5	6	7	Know nothing about SAPA

Sample PR-5 (cont'd)

II. From what you presently know, how have you been impressed with SAPA as an elementary school science program?

Very favorably impressed	1	2	3	4	5	6	7	Very unfavorably impressed

III. What is your present attitude toward teaching SAPA to your class during the 1968-69 year?

Very eager to teach SAPA	1	2	3	4	5	6	7	Really prefer not to teach SAPA

IV. SAPA is a "process" curriculum. Many "content" curriculums can also be selected for science instruction. Right now, I think SAPA "process" lessons are appropriate (worthwhile) for my students to the following degree:

Very appropriate	1	2	3	4	5	6	7	Very inappropriate

V. Various members of the education profession serve as initiators or energizing forces for educational innovations in different school districts. Who do you think usually gets a curriculum innovation started first (who is behind its introduction?) in your own school district? Please rank the following educators in the order you see them as initiators of innovation. "1" should stand for the most important initiator you perceive and "8" for the least important initiator.

__________ school board

__________ department heads

__________ subject supervisors

__________ district superintendent

__________ principals

__________ teachers

__________ parents

__________ other central office personnel

Sample PR-5 (cont'd)

VI. Various resources are needed to successfully implement any curriculum change. On the basis of past experience or training, please rate the following resources in the order that you expect them to be most effective in assisting you to implement SAPA in your classroom during the 1968-69 school year. "1" should stand for the most effective resource and "5" for the least effective resource.

__________ other teachers
__________ science consultant or supervisor
__________ building principal
__________ Ithaca inservice workshop
__________ teacher's manual and guides

VII. Please estimate the number of minutes you spent in teaching science per week to your class last year (1967-68) __________ minutes.

VIII. Check one response below. Considering the need to teach reading, arithmetic, composition, art, etc., as well as science to children, I feel that the time devoted to teaching science in my school building is presently:

__________entirely too much time given to science.
__________a little too much time given to science.
__________just the right amount of time given to science.
__________not quite enough time given to science.
__________entirely too little time given to science.

IX. In your personal opinion, what are some crucial decisions inservice workshop planning staffs must make to organize an effective 5-day workshop?

____

____

____

____

____

SAMPLE PR-6

ERIE
EASTERN REGIONAL INSTITUTE FOR EDUCATION
635 JAMES STREET, SYRACUSE, N.Y. 13203
TELEPHONE
474-5321
AREA CODE 315

January 20, 1969

From: EASTERN REGIONAL INSTITUTE FOR EDUCATION (ERIE)

WESTERN NEW YORK REGIONAL SUPPLEMENTARY EDUCATIONAL CENTER
PROJECT INNOVATION
ASSOCIATE OF THE WESTERN NEW YORK SCHOOL STUDY COUNCIL

CAPITOL DISTRICT REGIONAL SUPPLEMENTARY EDUCATIONAL CENTER
CAPITOL DISTRICT TITLE III

To: Chief School Administrators and
Elementary School Principals of
New York State

Regarding: Collaborative Title III-Title IV effort to establish LOIS-supported inservice workshop opportunities for teachers of Science--A Process Approach (Grades K-3)

During the past two school years, the Eastern Regional Institute for Education (ERIE) has engaged in the design of a system for promoting, installing, and monitoring process-oriented curricula in elementary schools of diverse characteristics. ERIE selected Science--A Process Approach, developed by the American Association for the Advancement of Science, for its first process curriculum installation and dissemination effort. Thirteen New York State schools, cooperating with ERIE, have introduced Science--A Process Approach into grades K-4. In several districts this science curriculum has spread beyond the limits of ERIE's "pilot schools" to other elementary schools in the district. Many Title III centers have collaborated with ERIE to demonstrate and disseminate this curriculum in additional districts.

ERIE has received numerous and continuing requests to provide inservice education for teachers from schools not affiliated with the ERIE program. In August 1968, with support from the Bureau of In-Service Education (LOIS program) of New York State, ERIE provided a five-day workshop in which 212 teachers and administrators from 37 school districts studied the characteristics and methodology of Science--A Process Approach. More applications were received for this workshop than could be accepted under terms of that LOIS proposal.

In view of the sustained and expanding interest in Science--A Process Approach expressed State-wide, the Capitol District Title III Agency, the Western New York Title III Agency (Project Innovation, Associate of the Western New York School

Sample PR-6 (cont'd)

Study Council), and the Eastern Regional Institute for Education are collaborating to establish two Science--A Process Approach (K-3) workshops during August 1969. A proposal has been submitted to the Bureau of In-Service Education (LOIS) by the three agencies to help school districts reduce the cost of workshop attendance. One workshop (Workshop A) for approximately 180 teachers and their respective principals or science supervisors is tentatively planned for the State University of New York at Buffalo from August 17 to August 22, 1969. A second workshop (Workshop B) of similar size is tentatively planned for Siena College at Albany from August 24 to August 29, 1969. Obviously, both workshops are tentative at this time, and their emergence into concrete reality depends upon such contingencies as a State Education Department decision to fund or not fund the LOIS proposal and the number of applications received from the schools around the State. Schools registering personnel for the workshops will be informed regularly of the status of the proposal and the nature of the enrollment.

The proposed workshops will have two major objectives:

1. To prepare K-3 teachers to introduce in their classrooms Science--A Process Approach, and to utilize process approach and behavioral objectives in as many curriculum areas as possible.

2. To develop further the ability of administrators and science supervisors to install, interpret, support, and disseminate process approach science instruction in the schools of their district.

Approximately 11 consultants with extensive teacher education in Science--A Process Approach will conduct class sessions and counsel with participants at each of the two workshops. Class size will be controlled, and participants will engage in many active "doing" or "manipulating" sessions. Participants may choose to live on campus (in-residence) or to commute during the workshop week. Registration fees will be adjusted accordingly.

Application to send teachers and administrators to the two workshops may be made by any school district or state college campus school. In case of overapplication, first preference will be given to districts submitting a sound statement of the district's objectives, strategy, and plans for the involvement of instructional and supervisory personnel in the installation, monitoring, and adoption of Science --A Process Approach. Delegations from schools newly installing this science program will be accepted ahead of scattered "replacement type" teachers from schools that have long included Science--A Process Approach in their instructional offerings. Districts are encouraged to enroll the principal or science supervisor with a group of teachers. Administrators will receive essentially the same workshop program as teachers, and it is suggested that they register for the highest grade level at which Science--A Process Approach will be taught in their school (K-3).

The State Education Department approves LOIS proposals only when local districts bear a portion of the expense. In this case, New York State has agreed tentatively to contribute a total of $25 per participant to the Title III-Title IV sponsoring group. The local district must contribute $103 per each in-residence participant (who opts to live on campus) and $73 per each participant who commutes to the workshop daily. In addition, travel expenses to and from the workshop as well as any participant stipends must be borne by the local school district.

Sample PR-6 (cont'd)

Workshop coordinators in the two sponsoring Title III agencies must receive all registration fees in full from each participating district by June 15 so that workshop-related invoices may be paid promptly. Items covered by the combined State and local contribution are as follows:

1. Room and board of in-residence participants (5 days) and staff consultants (7 days). (Two people will be assigned to each dormitory room.)

2. Daily lunch for commuter participants.

3. Salaries, travel, and per diem of consultants and instructors.

4. Expenses for planning and organizing, producing and transporting materials and equipment, bussing students for demonstration lessons, secretarial service, and so forth.

5. A Science--A Process Approach teacher guide for each participant to be used at the workshop and then to be retained to serve as the teacher text throughout the school year. (The guide's cost is $19, and it becomes district property.)

Upon receipt of this letter, school administrators should look to Project Innovation (Mr. Jack Hanssel) and the Albany area Title III Agency (Mr. Charles Ebetino) as the coordinators of these two workshops. Mr. Hanssel will register applicants from schools west of the Syracuse and Onondaga County area. Mr. Ebetino will register applicants from Onondaga County and all schools east of that county. Professor John McGrath of St. Rose College will be administrator of Workshop B to be held at Siena College. Professor Paul Young of Canisius College will be administrator of Workshop A, to be held at Buffalo State College. The science program staff of ERIE will serve as instructional resource people to both workshop administrators. School administrators who apply to enroll teachers in one of the two workshops should send applications and direct inquiries to the Title III Agency closest to their school. It is essential that administrators specify whether each participant is to live on campus (in-residence) or to commute.

Every effort is being made to affiliate with one or more universities or colleges so that interested participants may enroll for graduate credit. It is hoped that the workshops will carry the equivalent of three semester hours of credit. In 1967, Syracuse University granted three hours credit in elementary science methods for a similar workshop. Cornell University did likewise in 1968. If colleges can be identified which will grant this credit, it will be the responsibility of each participant to personally pay the tuition assessed by the college for the graduate credit. Such tuition is not covered by State or local proposal contributions nor by the Title III and Title IV agencies sponsoring the workshops.

Additional information about class schedules, college credit, arrival times, food, rooms, etc., will be mailed to registrants in June by the two Title III agencies. Confirmation that applicants have been enrolled in the workshops will be mailed prior to the close of school. Further questions about the workshops may be

Sample PR-6 (cont'd)

resolved by telephoning Mr. Jack Hanssel (western New York) at 716-634-7440 and Mr. Charles Ebetino (eastern New York) at 518-489-8429.

The interagency cooperation of the New York State Education Department, the Capitol District Title III Agency, the Western New York Regional Supplementary Educational Center (Project Innovation, Associate of the Western New York School Study Council), the Eastern Regional Institute for Education, and the public schools of the State provides a unique opportunity to implement innovative curricular programs. The staffs of the Study Council, the two Title III agencies, and ERIE are pleased to cooperate with schools in this manner.

Very truly yours

EASTERN REGIONAL INSTITUTE FOR EDUCATION

James m. mahan

James M. Mahan, Director
Process Curriculum Installation Program

JMM:tb
Attachments/

IT IS IMPERATIVE THAT YOU RETURN THE ATTACHED REGISTRATION BLANKS TO THE PROPER INDICATED ADDRESS BY MARCH 15 IF YOU WISH TO ENROLL TEACHERS IN THIS WORKSHOP.

Part I

Sample PR-6 (cont'd)

APPLICATION

Return to Coordinator for Workshop A or Workshop B, depending upon geographic location of your district.

Workshop A
Western New Yorkers

Mr. Jack Hanssel
Project Innovation
27 California Drive
Williamsville, New York 14211

Workshop B
Eastern New Yorkers

Mr. Charles Ebetino
Capitol District Regional
Supplementary Educational
Center
Albany, New York 12206

Science--A Process Approach K-3 Workshop

(A collaborative project involving Title III, Title IV, Study Council, and State Education Department agencies.)

____ School District

______________________________________ ____________ Address

______________________________ Area Code and Telephone Number

hereby makes application for _____ teachers of grades K-3 and _____ administrators to attend a Science--A Process Approach Workshop coordinated by a Title III agency indicated above. The district agrees to pay the appropriate Title III agency a registration fee of $73 per each "commuter" participant and $103 per each "in-residence" participant. All registration fees will be paid by June 15, 1969. The district will provide travel reimbursements and stipends for participants in accordance with local district policy. Since the sponsoring agencies must guarantee consultant salaries and travel, purchase materials, rent dormitory facilities, etc., it is understood that registration fees be paid in full, even if teachers fail to attend. (Although registrations may not be cancelled after they are confirmed by the coordinating agency, a district may substitute one teacher for another to insure that a full complement of teachers does attend.) The district requests to register a total of _____ "commuters" and _____ "in-resident" participants and agrees to pay registration fees totaling $_________.

Application made by:__________________________________type name

(signed)__________________________________

Date:____________ __________________________________
(title)

____________________office phone number

Part I and Part II of this application form must be returned to appropriate Title III agency no later than March 15, 1969.

1/20/69 Part II

Sample PR-6 (cont'd)

ame of District ______________________________

heck One: Participants from this district will attend the workshop located at

☐ State University of New York (A)
at Buffalo
August 17 to 22

☐ Siena College (B)
(Albany)
August 24 to 29

(See proper mailing address for each workshop site on Part I)

articipant information is requested below. It is needed to facilitate individual mailings this summer, for assign-ng pairs to dorm rooms, for constructing class sections by grade level, etc.
E SURE TO CHECK EITHER "COMMUTE" OR "IN-RESIDENCE" COLUMN FOR EACH PERSON.

	Mr. Mrs. Miss	Name of Teacher First Last	Grade Level of Instruction Desired (Choose from K-3)	Name of School Building To Which Assigned	Summer Home Address	Home Telephone
1						
2						
3						
4						
5						

13						
14						

		Name of Administrator and Position				
1						
2						

lease
Complete

_____ COMMUTERS x $73 + _____ IN-RESIDENT PARTICIPANTS x $103 = $ _________ TOTAL

lease indicate the district strategy for introduction or expansion of Science--A Process Approach (numbers of build-ngs, grades, teachers, supervisory personnel involved; what equipment will be available, what consultant assistance, tc.). Use back of this sheet to describe the installation strategy.

RETURN NO LATER THAN MARCH 15, 1969

SAMPLE PR-7

ERIE
EASTERN REGIONAL INSTITUTE FOR EDUCATION
635 JAMES STREET, SYRACUSE, N.Y. 13203
TELEPHONE
474-5321
AREA CODE 315

FOR IMMEDIATE RELEASE

____________________ and ________________, teachers from the ________________ Elementary School, were among educators attending a weekend science education conference Friday and Saturday sponsored by the Eastern Regional Institute for Education (ERIE) in Syracuse, New York.

The conference was an orientation meeting for teachers from 20 selected schools in New York and Pennsylvania cooperating with the Institute in a project designed to help introduce a new science curriculum in the elementary school.

The new curriculum, SCIENCE--A PROCESS APPROACH, will be introduced in grades K-3 of the 20 participating schools next fall. The Institute anticipates extending the project to grades 4-6 in succeeding years. SCIENCE--A PROCESS APPROACH aims at teaching basic scientific concepts and at

-more-

Sample PR-7 (cont'd)

developing competence in skills and thought processes basic to further scientific learning.

Teachers attending the meeting were given an overview of the new curriculum and became acquainted with the Institute's staff who will be working closely with the faculty of the ____________School throughout the duration of the project.

Teachers also met with representatives of the American Association for the Advancement of Science, which developed the new curriculum. Also on hand were representatives of the Xerox Corporation, producers of materials to be used in the project.

The Eastern Regional Institute for Education is one of the regional laboratories for applied research in education created under Title IV of the 1965 Elementary and Secondary Education Act.

SAMPLE PR-8

Registration Schedule

Time	Prof. Staff	S/C Staff	S/C Staff
12-1	2	A	B
1-2	3	B	C
2-3	5	A	B
3-4	5	A	B
4-5	6	B	C
8-9	2	---	---

Names of Prof. Staff Members

1. Jones (director)
2. Smith
3. Brown
4. Green
5. White
6. Blue

Secretarial/Clerical Staff

A-
B-
C-

The secretarial/clerical personnel will be responsible for registration. Questions of a special nature will be referred to the professional staff member on duty as assigned.

Sign for Registration Table

After 9:00 p.m. those participants for the (SAPA) Program desiring accommodations may be helped by calling room number __________.

Next Morning

Please Register for the __________ Program in room number ________________.

FLOWCHART CC

COLLEGE CREDIT PROCEDURES

With the help of the materials of this section, the reader should be able to

1. STATE a method for negotiating with appropriate college(s) for the granting of credit for workshop participation.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVE, OR IF NO COLLEGE CREDITS ARE TO BE AWARDED AT YOUR WORKSHOP, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 130 (NON-INSTRUCTIONAL ACTIVITIES).

COLLEGE CREDIT PROCEDURES: FLOWCHART CC

The possibility of earning college credits can serve as an important incentive to many teachers who might otherwise not choose to participate. It is the current practice of many school districts to encourage teachers to earn additional college credits, and in fact, most states require teachers to earn the Master's degree or its equivalent.

Workshop planners who enjoy close affiliation with a college or university will find relatively easy the task of making the necessary arrangements for granting academic credit to workshop participants. As representatives of an external agency, ERIE planners negotiated with institutions to qualify the workshop for college credit. This segment will be most useful to workshop planners lacking a direct college link; others may also find it to be a useful guide.

College credit procedures with options for 1-3 credits are most appropriate for consideration. Full participation in a one-week workshop of five full days can usually earn for the participant 1 credit. It may be possible to extend this to 2 or 3 credits if, in addition to workshop attendance, the participant is able to meet certain other requirements. These requirement options may include:

1. Teaching a course (such as Science--A Process Approach) for a full school year, and submitting data (such as Competency Measure data) to substantiate such teaching.
2. Submitting one or more reports and/or term papers relating to the course.

The flowchart dealing with College Credit Procedures is an explicit guide for completing credit-granting procedures. An appended letter (Sample CC-1) reviews the credit-granting arrangements which ERIE negotiated with a university department during 1968.

SAMPLE CC-1

__________ University

____

Department of Education

May 9, 1968

Eastern Regional Institute for Education
635 James Street
Syracuse, New York

Dear ______________:

I have checked with the various administration people involved and have now completed arrangements for cooperation with ERIE in offering credit for the two workshops to be conducted this summer.

In conjunction with the college teacher workshop, we will offer two credits of Education 500, Special Studies, at a cost of $50 per credit. These credits will be available and indicated as work in science education at ________ University. Also, we would be happy to provide elaborating information for those participants who so desire a statement for use with their schools.

For the elementary teachers workshop to be conducted in late August, and for which continued participation during the coming academic year would also be possible, we will offer an option of 1-3 credits. A minimum of one credit registration would be available to those participants enrolled in the summer workshop. Those teachers who so desire may enroll for one or two more credits which would be completed during the academic year 1968-69. These credits would also be available as Education 500 and would be indicated as credit in elementary science education. Also, we would provide elaborating statements for those teachers who desire to fulfill school requirements.

In addition to cooperation in workshop planning, we would plan to provide staff services during the academic year and some materials for the teachers. All of the costs for these services and for the materials would be paid through monies obtained through credit fee payments. In other words, there would be no additional costs to ERIE for conducting our portion of the program during 1967-68. The charges for tuition would reimburse us for these costs.

I trust that these arrangements are satisfactory, and I hope to proceed in completing all arrangements including some assignment of staff before the commencement of the workshops.

Cordially,

FLOWCHART NI

NON-INSTRUCTIONAL ACTIVITES

With the help of the materials of this section, the reader should be able to

1. PLAN appropriate non-instructional activities such as recreation, meal times, and "break" times for inclusion in the total workshop schedule.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVE, OR IF THE NATURE OF YOUR WORKSHOP IS SUCH THAT THERE IS NO NEED FOR NON-INSTRUCTIONAL ACTIVITIES, FEEL FREE TO SKIP THIS SECTION AND PROCEED TO PAGE 135 (EVALUATION).

NON-INSTRUCTIONAL ACTIVITIES: FLOWCHART NI

Carefully chosen non-instructional activities can make the difference between a "so-so" workshop experience and one which is enthusiastically received. Some of the strongest and some of the weakest aspects of ERIE's 1967 workshop related to non-instructional activities. Remarks recorded on post-workshop participant evaluation forms tell the tale:

On the one hand,

> The beautiful campus and delicious food added to the pleasures of the week.
>
> The food was too good--I gained weight. (Back to yogurt!)

But also,

> The social part of the week (after classes) was primarily a wasteland. We were led to expect certain facilities and the lack of these led to near-insanity...
>
> Despite the lack of blankets, which undoubtedly caused some sore throats and colds, the facilities were more than adequate, and the food too good!
>
> It would have been well to provide more entertainment, since most of us were without local transportation and unable to find entertainment facilities.
>
> ...wish we had more sight-seeing available...

Careful planning will enhance the recreational aspects of any workshop. Effective organization keeps a reasonable balance between task accomplishment and a sense of personal social satisfaction. It is vital that workshop planners pay close heed to the idiographic dimension. This needs to be stressed since there is usually no lack of emphasis on the nomothetic dimension.

Milestone Tasks

1. **MEET** with site management personnel to acquire data relative to meal arrangements, recreational possibilities, and the like.

Preliminary negotiations with site management personnel should deal extensively with dates, costs, and the like. However, it is suggested that workshop planners begin early to explore the availability of the site's recreational possibilities. In dealing with site management, it is important that definite commitments be negotiated. (A reading of the participant comments cited above, for example, might lead one to believe that the ERIE planners had neglected the matter of recreational possibilities. However, this was not the case.)

In pre-workshop discussions with site officials, ERIE was assured the use of a number of campus recreational facilities, including:

1. Outdoor and indoor swimming.
2. Riding

3. Bowling

4. Use of the "Pub"

5. Snack bar

6. Table tennis

However, during the week of the workshop,

1. The outdoor pool was closed for repairs, and the weather was chilly much of the time.

2. Riding was available--but the cost was considered excessive by most participants.

3. The bowling alleys were open only during limited hours--for the most part, at times when the workshop participants were already occupied with class responsibilities.

4. The "Pub" was extensively used; but, since beer was the only beverage served, many participants soon lost interest.

5. The snack bar, although open during the daytime hours, was closed in the evening.

ERIE's experience serves to underline the need for planners to aggressively negotiate campus recreational facilities. Unless positive assurances are obtained, it is possible that many loosely-discussed recreational possibilities may fail to materialize.

2a. IDENTIFY and STATE the recreational possibilities which the selected site has to offer to participants. (i.e., tennis, golf, riding, bowling, swimming, local tours of interest.)

In addition to on-campus recreation, nearby off-campus possibilities should also be explored. Tours of local places of interest are considered to be a fine possibility, especially in the case of workshops which involve non-local participants. Since it is probable that the staff will be busy with the details of the workshop, off-site activities should be arranged to involve a minimum of workshop staff.

Workshop recreational possibilities should be publicized, Advance knowledge of available recreation informs participants to bring appropriate attire and/or equipment.

2b. CONSTRUCT a schedule of meal times in consultation with the on-site personnel responsible for these arrangements. Be sure to compare seating capacities with workshop enrollment.

In the case of large workshops, meal times can become the source of great discontent. The food itself should be plentiful, tasty, and attractively served. However, even this is not enough. Nothing is more frustrating to assembled groups than the prospect of waiting in long lines before meals. It may be desirable after the opening of a workshop to "stagger" meal times as a means of reducing waiting periods. Since such a modification may have ramifications requiring adjustments in the scheduling of staff and of instructional groups, it is important to approach scheduling variations with caution.

2c. IDENTIFY and STATE one or more group social events which are to be made available to the participants. (i.e. opening-day reception, barbecue, etc.)

Group social events will help the workshop participants become better acquainted and also help foster group cohesiveness. The ERIE workshops of 1967 and 1968 featured an opening-day reception and an informal barbecue later in the week. The type and number of such events depends upon the funding available.

FLOWCHART EV

EVALUATION

With the help of the materials of this section, the reader should be able to

1. EVALUATE each workshop instructional session, both from the standpoint of "teachability" and its effectiveness in producing behavioral changes in the participants.
2. IDENTIFY the workshop expectations of the participants.
3. STATE changes of learner behavior occurring during the workshop, as identified through the use of pre- and post-workshop test instruments.
4. STATE the participants' evaluations of the total workshop as well as individual facets thereof.
5. CONSTRUCT evaluative reports addressed to appropriate sponsoring or funding agencies.

IF YOU ARE ALREADY ABLE TO MEET THE ABOVE-NAMED PERFORMANCE OBJECTIVES, FEEL FREE TO SKIP THIS SECTION.

EVALUATION: FLOWCHART EV

Evaluation is defined as the process of determining the value of something; to appraise is to evaluate. Workshops may be evaluated from many different points of view. The planner of instruction wants to know how well his instructional designs have worked--how much was really learned as a result of his efforts? The participant asks the question, "Were my time and efforts well spent in this endeavor, or was it all just a waste of time?" The sponsor is anxious to find out what kind of impact the workshop may have had. Will it, in the case of a teacher workshop, produce desirable changes in teacher behavior? And, if desirable changes are produced, will they have lasting effects; or will they be but momentary changes, soon to be lost in the busy classroom world?

It appears certain that there is no shortage of quesions to ask about the effects of a workshop. Unfortunately, the appropriate questions are seldom asked. Evaluation is too often given but passing thought. The questions asked are often trivial and asked more as an after-thought than as a result of careful planning. If evaluation is to provide useful information about the workshop, it must be planned and executed as carefully as the instructional program.

Since each workshop endeavor is unique in many ways, it becomes the responsibility of planners to constantly think in terms of evaluation. As each segment of the workshop unfolds, it becomes necessary for the staff to ask itself the most appropriate questions. The transition from questions to "how to get this information" usually is relatively easy. Anyone who has faced this problem knows that the most difficult task is the framing of appropriate questions.

It is not possible to list all the questions that should be asked to evaluate a workshop. This document provides clues to certain evaluative techniques. The challenge for the planner is to determine the value of his workshop by whatever methods he finds to be most appropriate.

Milestone Tasks

6. CONSTRUCT items designed to identify the workshop expectations of the participants.

7. INCLUDE the most appropriate pre-workshop expectations items as part of the registration return materials.

What do most participants expect a workshop to do for them? It is primarily to this question that the pre-workshop evaluation will address itself. However, pre-workshop evaluation can also be used to serve a number of other purposes.

Sponsors are interested in opinion changes which occur as a result of participation in a workshop. For example, consider the question, "How much time, in minutes per week, do you think should be devoted to science instruction?" Asked pre- and post-workshop, this question might be used to provide an indication of attitudinal changes occurring during the workshop.

Sponsors and planners often find it desirable to collect "baseline" demographic data about prospective workshop participants. To this end, pre-workshop registration return materials may request data beyond that of immediate use in the registration procedure. For example, the data requested might include such items as:

1. The number of years of professional experience of the applicant.
2. His total number of accumulated college credits in selected disciplines.
3. The number of years spent in his present position.

Such data may also provide clues to the nature of the instruction most likely to be of greatest impact.

For the reader's convenience, a sample pre-workshop registration form is provided (Sample EV-1). This form used by ERIE in the 1968 workshop is not meant to serve as a model. Instead, the reader is encouraged to design forms containing items most appropriate to his own needs. Keep in mind the requirements of any external funding agencies; It may be important to collect pre-workshop data for use in reporting to such groups.

8. CONSTRUCT (or obtain permission to use pre-existing) pre- and post-workshop testing instruments for administration to participants.

9. ADMINISTER formal pre-testing instruments to the workshop participants.

10. ADMINISTER formal post-testing instruments to the workshop participants.

Pre- and post-instructional testing can provide much useful information to both workshop staff and participant alike. The pre-test can serve as a diagnostic instrument for the instructor. For example, the AAAS Process Measure for Teachers (Form A) helps to identify the science competencies which each teacher already possesses prior to instruction. Properly used, the data so collected can enable the instructor to eliminate certain aspects of the proposed workshop instruction which might otherwise merely be redundant.

The post-test serves as a means of assessing what has been achieved during the workshop, as well as areas in need of further attention.

In the case of Science--A Process Approach workshops, there exist parallel forms of the Process Measure for Teachers (Forms A and B), which can be used as pre- and post-instructional tests. It is suggested by AAAS that the data so acquired be used to provide "...a summary of the range of process skills, science content and teaching competencies which are to be acquired by the participants..."

The following quotation taken from the AAAS Guide for Inservice Instruction (1967) clarifies its suggested use:

> Some teachers may be reluctant to take the Process Measure, but anonymity of the teacher can be protected by the use of code numbers, the code number being known only by the teacher. In this way each teacher can be made aware of his own score. The instructor can have information on the total group and on the learning that occurs between pre-test and post-test [p. 1].

4. CONSTRUCT appraisal activities for each segment of instruction.

5. ADMINISTER appropriate appraisal activities at the end of each instructional segment.

Since "appraisal activities" are considered an integral part of each instructional segment of the workshop, this aspect of evaluation has been discussed in a previous section of this document--that dealing specifically with the development of the instructional program. The appraisal activity is designed to serve the function of telling both instructor and learner specifically which behaviors the learner has indeed acquired as a result of the instruction.

Since both instructor and learner are (or at least should be) concerned about the extent of the behavioral acquisition, it is vital that the learner receive feedback information. He should not be expected to submit to testing without in turn being informed about the results. Ideally, the results of appraisal activities should determine the direction that subsequent instruction will take. If possible, the workshop schedule should include "open" or "review" times assigned according to the needs and interests of the participants and the results of the appraisal activities. Unfortunately, this procedure is not always feasible because of the constraints imposed by workshop schedules. At the very least, the results of appraisal activities should be used as the basis for revising future workshop instructional plans.

19. CONSTRUCT evaluative items for an end-of-workshop participant questionnaire. Structure the evaluation to fit the demands of any fund-granting agencies.

20. ADMINISTER end-of-workshop questionnaire to the participants.

End-of-workshop questionnaires often are the chief source of data collected to answer the question, "How well did this workshop accomplish the stated goals?" Workshop planners are urged to broaden their evaluative fields of view. While the end-of-workshop questionnaire may serve a useful function, use should be made of other evaluative techniques as well. It is suggested that the planner give careful consideration to the use of several other evaluative modes, in addition to the usual questionnaire.

The questionnaire utilized by ERIE in 1968 is included for the reader's convenience (Sample EV-2).

11. CONSTRUCT evaluative items for an end-of-workshop instructor's questionnaire.

14. ADMINISTER end-of workshop questionnaire to the instructional staff.

The perceptions of the instructional staff in regard to the workshop may be somewhat different from those of the participants. It is particularly true that the instructors will, during the course of the workshop, be able to make useful professional judgments regarding the teachability of the instructional program. These data should be recorded so as to make easier the task of producing revised lesson plans, should these later be needed.

The focus on the instructor's questionnaire will be on the quality and teachability of the instructional program. However, it is also well to structure this questionnaire so as to have it encourage the provision of other types of feedback information. The 1967 ERIE instructor's questionnaire is included for the reader's convenience (Sample EV-3). Instructors for the 1967 workshop were also encouraged to address evaluative letters to the director, and a large number of staff members did do so. Such instructional feedback mechanisms serve as useful adjuncts to the formal questionnaire, and their use should also be considered.

Remember also that the "Instructional Program" sequence of this document has built into it a mechanism whereby the members of the instructional staff are able to suggest instructional modifications prior to the opening of the workshop.

16. have each participant CONSTRUCT a "Dear Director" letter which DESCRIBES their perceptions of the workshop.

17. CLASSIFY the participant "Dear Director" responses as to their being (a) nomothetic, or (b) idiographic.

18. CLASSIFY the participant "nomothetic" and "idiographic" responses as to their being (a) positive, or (b) negative responses.

A danger inherent in structured feedback mechanisms is their tendency to narrow the evaluative focus of those who are to use them. On the other hand, totally unstructured mechanisms, such as the "Dear Director" letter, may permit the evaluator to omit from his thinking many aspects which need assessment. Because of this, it is desirable to make use of both procedures; or, perhaps a combination of formats may be attempted.

Critics of the open-ended evaluative mechanisms often cite the difficulties of data tabulation as prime disadvantages of these techniques. However, while short-answer responses and continuum items do lend themselves to statistical treatment, the similar utilization of open-ended responses is not impossible. The use of the Getzels' model (1958) enables the evaluator to classify open-ended responses in a convenient and useful manner. For example, note the manner in which it has been possible to categorize comments of the 1967 ERIE workshop "Dear Director" letters.

Some 115 of the "Dear Director" letters were received. The comments and suggestions contained therein were classified into the following categories:

1. Positive nomothetic comments (302)
2. Positive idiographic comments (176)
3. Negative nomothetic comments (84)
4. Negative idiographic comments (48)
5. Nomothetic suggestions (22)
6. Idiographic suggestions (5)

The number in parenthesis following each of the categories above indicates the response frequency. In addition, it was decided to count the "global comments" appearing in the letters.

This type of evaluative scheme can be very informative. A perusal of the comments and the number of times each comment was noted provides the reader with an outline of the perception held by the workshop participants. A copy of this report is attached (Sample EV-4) since it may provide basic suggestions regarding teacher workshops and their evaluation.

22. CONSTRUCT evaluative items for a post-workshop participant's questionnaire to be administered 2-6 months after the workshop.

23. ADMINISTER the post-workshop questionnaire to all or to selected participants.

Certain kinds of data cannot be collected prior to or during the workshop but must instead wait until a certain amount of post-workshop time has elapsed. For example, data regarding possible long-range workshop effects fall into this category. If the workshop was designed to initiate teachers into the utilization of a new curriculum (such as the ERIE Science--A Process Approach workshops were), the occasion of [illegible] workshop evaluation can serve more than one purpose. To understand this, consider the total ERIE effort, which involved not only an initial workshop but also featured a number of ongoing services such as biweekly consultant visits and a mid-year administrator's conference. In this case, ERIE used a series of post-workshop questionnaires as a means of obtaining data relative to:

1. The quality of its consultant services
2. Teacher perceptions of the innovative curriculum
3. Teacher rankings of various change-agents
4. Teacher rankings of the subjects included in their total curriculum
5. Time spent in science instruction
6. Teacher perceptions of flaws in the ERIE curriculum installation model

Copies of several of the ERIE post-workshop questionnaires are appended as illustrations of potential post-workshop evaluative devices (Samples EV-5, EV-6, and EV-7).

SAMPLE EV-1

EASTERN REGIONAL INSTITUTE FOR EDUCATION

Ithaca College Science Workshop Information FORM

Travel Arrangements and Science Continuum Data

ERIE Pilot and Non-Pilot School Participants are asked to please return this form to ERIE immediately

Return to: Dr. Wayne Ransom, ERIE
635 James Street, Syracuse, N.Y. 13203

The ERIE staff requests the following travel information so that provisions may be made to man enough registration booths to serve large numbers of arriving workshop participants. Parking spaces will be requested from Ithaca College based on this form. Taxi and bus companies will be informed of arrival times of large groups of people.

Check one box: ☐ I am a teacher. ☐ I am an administrator or supervisor.

A. Your Name: ____________________

B. Home Address: ____________________
Street City
____
State Home Phone: (area code)

C. Name of School District: ____________________

D. Name of School Building: ____________________

E. Grade You Teach: ___ or Grades You Administrate (Supervise) ___

F. Number of years of experience: ___ (Put "0" if beginning teacher.)

G. Are you a teacher or administrator in one of the ERIE Science Program Pilot Schools? (Circle) Yes or No

H. If you are not a member of the faculty of an ERIE Pilot School, for how many years has your school building curriculum included Science--A Process Approach? ____________________

- -

Sample EV-1 (cont'd)

TRAVEL PLANS

1. I plan to arrive at Ithaca on Sunday, August 25, at ____________p.m.

2. I plan to arrive by: ___AUTOMOBILE
___AIR
___BUS
___OTHER (describe) ______________

I will fly on ______________Airlines, on Flt. No.______, arrival time of________or I will ride ______________ Bus Lines with arrival time of ______.

3. Check one box and fill in necessary blanks:

☐ I plan to travel alone

OR

☐ I plan to travel in an auto with the following teachers and/or administrators who also are attending the workshop (full names):

(1)________________________ (3)________________________

(2)________________________ (4)________________________

4. In case of emergency contact:

Name:______________________________________

Address:____________________________________

____

______________________ Phone: ________________
(area code)

GRADUATE CREDIT DESIRES
(Open to teachers only)

5. ☐ Cornell U. Graduate Credit: Presently, I am interested in talking to a Cornell representative about earning graduate credit in connection with the workshop. I would like to earn ___ hours of credit.

Sample EV-1 (cont'd)

OBSERVATIONS ON SCIENCE--A PROCESS APPROACH

The candid responses of teachers and administrators on the following items will lead to more effective educational service by ERIE. All of your responses will remain confidential.

On all continuum questions below, please indicate your answer (the way you personally feel about the particular topic) by circling the number that comes closest to representing your present view.

EXAMPLE ITEM A

As a site for a workshop, Ithaca College is:

Extremely beautiful & inspiring	1	[✓ 2]	3	4	5	6	7	Uninspiring and drab

You will notice that I have circled number "two" on the continuum. "Two" stands for a beautiful and inspiring workshop site. Many participants will probably agree that a low number should be circled for Example A. Ithaca College is beautiful!

Now, please circle your frank response to each item below. Teachers should respond relative to their classroom and administrators relative to their building or district.

I. Right now, the degree to which I understand the nature and objectives of the type of elementary school science curricula known as Science--A Process Approach (SAPA) is:

Have extensive knowledge about SAPA	1	2	3	4	5	6	7	Know nothing about SAPA

Sample EV-1 (cont'd)

II. From what you presently know, how have you been impressed with SAPA as an elementary school science program?

Very favorably impressed 1 2 3 4 5 6 7 Very unfavorably impressed

III. What is your present attitude toward teaching SAPA to your class during the 1968-69 year?

Very eager to teach SAPA 1 2 3 4 5 6 7 Really prefer not to teach SAPA

IV. SAPA is a "process" curriculum. Many "content" curriculums can also be selected for science instruction. Right now, I think SAPA "process" lessons are appropriate (worthwhile) for my students to the following degree:

Very appropriate 1 2 3 4 5 6 7 Very inappropriate

V. Various members of the education profession serve as initiators or energizing forces for educational innovations in different school districts. Who do you think usually gets a curriculum innovation started first (who is behind its introduction?) in your own school district? Please rank the following educators in the order you see them as initiators of innovation. "1" should stand for the most important initiator you perceive and "8" for the least important initiator.

__________ school board

__________ department heads

__________ subject supervisors

__________ district superintendent

__________ principals

__________ teachers

__________ parents

__________ other central office personnel

Sample EV-1 (cont'd)

VI. Various resources are needed to successfully implement any curriculum change. On the basis of past experience or training, please rate the following resources in the order that you expect them to be most effective in assisting you to implement SAPA in your classroom during the 1968-69 school year. "1" should stand for the most effective resource and "5" for the least effective resource.

__________ other teachers
__________ science consultant or supervisor
__________ building principal
__________ Ithaca inservice workshop
__________ teacher's manual and guides

VII. Please estimate the number of minutes you spent in teaching science per week to your class last year (1967-68) __________ minutes.

VIII. Check one response below. Considering the need to teach reading, arithmetic, composition, art, etc., as well as science to children, I feel that the time devoted to teaching science in my school building is presently:

__________ entirely too much time given to science.
__________ a little too much time given to science.
__________ just the right amount of time given to science.
__________ not quite enough time given to science.
__________ entirely too little time given to science.

IX. In your personal opinion, what are some crucial decisions inservice workshop planning staffs must make to organize an effective 5-day workshop?

____

____

____

____

____

SAMPLE EV-2

Ithaca Workshop Questionnaire

A. Check one:

_____ I am an ERIE pilot building teacher.

_____ I am a New York State, non-ERIE affiliated teacher.

_____ I am a Pennsylvania, non-ERIE affiliated teacher.

B. What grade do you teach? ________

C. Name: ____________________________

D. Name of School Building: ______________________________

E. Name of School District: ______________________________

F. Number of years of teaching experience: ________

G. How many years has your school building curriculum included Science--A Process Approach (SAPA)? __________

Sample EV-2 (cont'd)

During the past 4 1/2 days you have been exposed to Science--A Process Approach (SAPA). We would appreciate your ideas concerning SAPA and this workshop experience so that future workshops may be more beneficial for all concerned. For each continuum-type item listed below, please indicate by circling a number your relative position on the continuous scale.

For example, suppose that you were asked to respond to the quality of the meals provided by Ithaca College. The continuous scale and your relative position on it might well look like this. (You will have an opportunity to make comments in the blanks that follow many continuum items.)

Quality of Ithaca College Meals

Very good meals	1	[✓ 2]	3	4	5	6	7	Very poor meals

Number "2" has been circled, indicating the responder considered the meals to be quite good. If a "7" had been circled, it would mean the responder considered the meals to be very poor.

*Please draw your own circle on this continuum now--we want to know how you really feel about the meals.

Administration and Organization

You found the administration and organization of this workshop to be:

1. Smooth with few problems	1	2	3	4	5	6	7	Rough with many problems
2. Satisfying	1	2	3	4	5	6	7	Frustrating

To improve workshop administration and organization, ERIE should: (Comment)

____

____

____

____

Sample EV-2 (cont'd)

Workshop Facilities

Ithaca College rooms, recreation, and class facilities were:

3. Very satisfactory living spaces	1	2	3	4	5	6	7	Unsatisfactory living spaces
4. Very adequate recreation facilities	1	2	3	4	5	6	7	Poor recreation facilities
5. Very adequate classroom facilities	1	2	3	4	5	6	7	Poor classroom facilities

Suggestions relative to living spaces, recreation, classrooms: (Comment)

Instructor Performance

In general, the instructors in my class sessions (were), (had a):

6. Well organized	1	2	3	4	5	6	7	Poorly organized
7. Clear and precise in their presentations	1	2	3	4	5	6	7	Not clear and precise

Sample EV-2 (cont'd)

8.	Answered my questions satisfactorily	1	2	3	4	5	6	7	Did not answer questions satisfactorily
9.	Strong knowledge of SAPA	1	2	3	4	5	6	7	Weak knowledge of SAPA
10.	Enthusiastic	1	2	3	4	5	6	7	Apathetic
11.	Used an appropriate teaching style	1	2	3	4	5	6	7	Inappropriate teaching style
12.	Suberbly related content and activities to objectives of workshop	1	2	3	4	5	6	7	Failed to relate content and activities to objectives
13.	Competently pitched instruction to level of the participant	1	2	3	4	5	6	7	Failed to consider level of the participant
14.	Understood clearly classroom conductions and elementary teachers' problems	1	2	3	4	5	6	7	Did not understand problems of the teacher
15.	Generally excellent	1	2	3	4	5	6	7	Generally poor

Views About SAPA

Now that I have spend a week in a Science--A Process Approach workshop at Ithaca, I would presently say that I:

Sample EV-2 (cont'd)

16.	Thoroughly understand the nature and objectives of SAPA	1	2	3	4	5	6	7	Do not understand the nature and objectives of SAPA
17.	Am very favorably impressed with SAPA today	1	2	3	4	5	6	7	Presently am very unfavorably impressed
18.	Am very eager to teach SAPA	1	2	3	4	5	6	7	Prefer not to teach SAPA
19.	See SAPA process lessons as very appropriate for my students	1	2	3	4	5	6	7	See these lessons as very inappropriate for my students

20. Right now, I plan to use about ____ minutes of classroom instruction time per week in teaching **SAPA**.

21. The instructional time required to teach SAPA in the elementary school classroom, considering all other subjects, appears to be (check one): ___ entirely too much; ___ a little too much; ___ just the right amount; ___ not quite enough; ___ entirely too little.

22. Various resources are needed to successfully implement any curriculum change. Right now I would rank the following resources from most effective to least effective inithe following order ("1" should stand for most effective resource and "5" for least effective resource).

_____ other teachers

_____ science consultant or supervisor

_____ building principal

_____ Ithaca inservice workshop

_____ teacher's manual and guides

Sample EV-2 (cont'd)

Certain Components of the Ithaca Workshop

Respond to these items according to the degree to which they contribute to your ability to teach SAPA in 1968-69.

23. How helpful were the sessions that featured "micro" teaching?

Very
helpful 1 2 3 4 5 6 7 No help at all

24. How helpful was the faculty meeting with your principal:

Very
helpful 1 2 3 4 5 6 7 No help at all

25. How useful was the presentation made by Dr. David Elkind (learning psychology)?

Very
practical
and useful 1 2 3 4 5 6 7 Not useful

26. How useful was the presentation made by Dr. Sidney Simon (values)?

Very
practical
and useful 1 2 3 4 5 6 7 Not useful

27. How helpful was the film on *Fermentation*?

Very
helpful 1 2 3 4 5 6 7 No help at all

28. How helpful was the instructional time devoted to the hierarchy chart?

Very
helpful 1 2 3 4 5 6 7 No help at all

29. How helpful were the reporting sessions.

Very
helpful 1 2 3 4 5 6 7 No help at all

30. How helpful were the sessions on behavioral objectives?

Very
helpful 1 2 3 4 5 6 7 No help at all

Sample EV-2 (cont'd)

What learning activities or content material were under-emphasized or completely neglected in the workshop? (Comment)

Fourth grade teachers please answer the 4 questions below:

*31. How helpful was the 4th grade "biology technique" session?

Very helpful	1	2	3	4	5	6	7	No help at all

*32. How helpful was the 4th grade "electricity content" session?

Very helpful	1	2	3	4	5	6	7	No help at all

*33. How helpful was the 4th grade "Space/Time-Force" session?

Very helpful	1	2	3	4	5	6	7	No help at all

*34. How helpful was the 4th grade "teaching for inquiry" session?

Very helpful	1	2	3	4	5	6	7	No help at all

ALL teachers please answer the questions below:

35. Was there enough time to cover all the necessary content and activities you feel belong in a good SAPA workshop?

There was enough time	1	2	3	4	5	6	7	There was too little time to cover all this

Sample EV-2 (cont'd)

36. How clearly were the major objectives of this workshop presented to you?

Objectives were made very clear	1	2	3	4	5	6	7	Objectives were not clear at all

37. In general, how effectively did instructors relate the objectives of the workshop to the organization and selection of content material?

Objectives superbly related to content	1	2	3	4	5	6	7	Objectives to content very poorly related

38. In general, how effectively did the learning activities that were scheduled contribute to meeting objectives of the workshop?

Activities very effectively contributed	1	2	3	4	5	6	7	Activities were ill-chosen and ineffective

39. Were sufficient opportunities provided for participants to practice skills as they were learned?

Adequate opportunities were provided	1	2	3	4	5	6	7	Far too few opportunities provided

40. Were sufficient opportunities for participant discussion and interaction provided?

Adequate opportunities were provided	1	2	3	4	5	6	7	Far too few opportunities provided

41. What suggestions would you like to make relative to workshop content,or workshop learning activities?

Sample EV-2 (cont'd)

Specifically, we would like for you to evaluate, below, certain workshop activities or sessions in view of the major workshop objectives they were designed to achieve.

Objective 1: Participants will demonstrate the ability to identify instructional objectives in behavioral form.

Activities Selected for Objective 1: Session on behavioral objectives, filmstrip, manipulative materials, micro teaching planning sessions including objectives, portions of reporting sessions.

42. The activities just listed contributed to the accomplishment of Objective 1 to the following degree:

Extremely well	1	2	3	4	5	6	7 Very poorly

Objective 2: Participants will describe the objectives, content, philosophy, and teaching methods of Science--A Process Approach.

Activities Selected for Objective 2: All components of the workshop were included in an attempt to meet Objective 2.

43. All the activities experienced this week contributed to the accomplishment of Objective 2 to the following degree:

Extremely well	1	2	3	4	5	6	7 Very poorly

Objective 3: Participants will identify and describe such basic processes of science as observation, measurement, inference, classification, using numbers, using space/time relations, communication, and prediction.

*Fourth grade participants should also identify and describe the integrated processes which are formulating hypotheses, defining operationally, controlling variables, and interpreting data.

Sample EV-2 (cont'd)

Activities Selected for Objective 3: One or more "process sessions" were scheduled for each of these processes. Micro teaching lessons also provided opportunity to work with a certain process.

44. The activities just listed contributed to the accomplishment of Objective 3 to the following degree:

Extremely well 1 2 3 4 5 6 7 Very poorly

Objective 4: The participant will demonstrate skills in preparing to teach, actually teaching, and evaluating specific exercises of SAPA to small groups of children.

Activities Selected for Objective 4: Planning sessions, micro teaching, reporting sessions.

45. The activities just listed contributed to the accomplishment of Objective 4 to the following degree:

Extremely well 1 2 3 4 5 6 7 Very poorly

Objective 5: The participant will analyze and constructively criticize demonstration science lessons taught by other teachers in a micro setting or on film.

Activities Selected for Objective 5: Observation of lessons taught by micro teaching partners, K-4 motion picture films.

46. The activities just listed contributed to the accomplishment of Objective 5 to the following degree:

Extremely well 1 2 3 4 5 6 7 Very poorly

47. Workshop instructors vary in their instructional performance. All instructors in this workshop are sincerely interested in constructive criticism that might lead to more effective performances in future inservice training appearances. We ask you to list and describe any particularly strong teaching performance or techniques

Sample EV-2 (cont'd)

and identify the instructor exemplifying it. We also ask you to list any weak teaching performance or technique and identify the instructor exemplifying it. Instructors are given a number in the list below. Please use the number of an instructor to identify who your comments refer to.

For example: "99 had a superb ability to elicit responses and questions from all session participants."

OR

"89 was not familiar with SAPA and contributed little to reporting sessions."

Key to Instructors

01	David Ackerman	16	Al Smeraglio
02	Bob Bernoff	17	Charles Wallace
03	Bruce Bundy	18	Karle Wicker
04	Mary Jane Colegrove	19	Dave Williams
05	Ann Culhane	20	Joseph Belluci
06	Len Finkelstein	21	Robert Boenig
07	Gene Hall	22	James Currie
08	Millie Harbeck	23	G. Raymond Fisk
09	Howard Jones	24	Lester Kieft
10	Vic Kirsch	25	Lawrence Kiely
11	Betty McKnight	26	Anthony Lazzaro
12	Sadie Mitchell	27	Richard Mason
13	Alice Moses	28	Charles Mitchell
14	Wayne Ransom	29	Russell Oakes
15	William Ritz	30	Raymond O'Toole

Comments (pro and con) about specific instructors:

Sample EV-2 (cont'd)

48. What changes should be made by the workshop staff to improve this workshop in the future?

49. What other comments would you like to make?

SAMPLE EV-3

ITHACA SCIENCE--A PROCESS APPROACH WORKSHOP

Comments of Teaching Consultant

From Saturday morning, August 26 to Friday noon, September 1, you have participated in rehearsal, social, and instructional phases of the Science--A Process Approach Workshop. We would appreciate your ideas concerning this workshop so that future workshops may be improved. Please react to the following open-ended phrases.

1. The major weakness of this workshop was ______________

   ____

   ____

2. Although not a major weakness, another problem that occurred and should be avoided was ______________

   ____

   ____

3. The ERIE staff could have made my role as a teaching consultant easier to fulfill if ______________

   ____

   ____

4. In the area of supplies, equipment, and classrooms

   ____

   ____

5. In the area of personal accommodations (room, board, recreation, transportation) ______________

   ____

   ____

Sample EV-3 (cont'd)

6. Relative to the number of "subject areas" taught and the time allotted to each area ______________________

7. In my opinion, the teachers from the 20 schools may have been most disturbed or confused by ____________

8. Before conducting another similar workshop, the ERIE staff should ______________________

9. Other comments I would like to make are ____________

____
Signature

SAMPLE EV-4

ITHACA COLLEGE WORKSHOP EVALUATION
"Dear Director" Letters
(Based on 115 letters submitted)

Positive Nomothetic

Nature of Comment	Total
Excellent Workshop Planning and Organization	60
Competent Instructors	58
Instructional Approach used in Sessions was most Beneficial	34
Week was Well Spent	23
Micro Teaching Experience was Valuable	21
Looking Forward to Trying Things in the Classroom	20
I Feel Comfortable about Teaching as a Result of Workshop	20
Assistance in Planning Lessons and Answering Questions	15
I am Impressed with the Curriculum (SAPA)	14
The Program will Benefit the Children in Learning	13
I am Enthusiastic about Teaching Science	12
Reporting Sessions were Helpful	6
Will Try to use What I Learned	6
	302

Positive Idiographic

Staff was Friendly, Sincere, Relaxed, Informal	46
Excellent Food	37
Excellent Location, Facilities, Beauty	34
Feeling of Togetherness	16
Enjoyed Working with Teachers from Other Schools	15
Pleased to be a Participant in the Project	10
Welfare Consideration in Travel Plans and Emergencies	10
Fun, Tremendous, Great, Wonderful Workshop	8
	176

Sample EV-4 (cont'd)

Negative Nomothetic

Nature of Comment	Total
Video Tapes were Difficult to See and Hear; Unnatural Setting	29
Day was too Long; Fatigued by Mid-afternoon	16
Too Many Reporting Session; Digression in Reporting	13
Workshop too Close to Opening of School	11
Confusion in Getting Materials in Recreation Room	9
More Introductory Overview Needed on Hierarchy at the Opening General Session	6
	84

Negative Idiographic

Lack of Extra-Curricular Activities Such as Sightseeing and Evening Programs	27
Poor Lighting in Dorms (Reading Lamps)	9
Lack of Information on Parking, Mail, Bulletin Board	5
Lack of Newspaper	4
No Place for Evening Refreshments Other than Pub	3
	48

Suggestions

Nomothetic

Live Demonstration Teaching by Consultant	17
Consultant Should Meet (30 Min.) with Teachers of Schools He Works With	5

Idiographic

Stagger Lunch Line	5
	27

Sample EV-4 (cont'd)

Global Comments

	Total
Stimulating, inspiring, exciting, terrific, gratifying experience	27
Congratulations, good job, successful week, etc.	20
The workshop surpassed expectations--Best I ever attended	12
Leaving physically tired and mentally refreshed	12
Hoping for a great year	9
I have made great gains in overall professional growth	6
One of the most wonderful weeks of my life	5
Teachers colleges could learn a great deal by studying the ERIE approach to organization and instruction	4
A learning experience for teachers as well as children	3
The week filled the expectations following the May Teacher-Leader Meeting	3
Made me think about everything in a different way	2
The most sensible thing that educators have tried	1
High spot of my summer vacation	1
Never before learned so much in so short a time	1
Atmosphere was conducive to learning and self-expression	1
This had restored my faith in education	1
Most exciting classes I ever attended	1
For the first time I feel that teaching is a very important profession	1

SAMPLE EV-5

SUBJECT RANKING SURVEY

Please check one (or more if applicable) box or fill in blank in each of items A-D below.

A. School Position

- ☐ kindergarten
- ☐ first grade
- ☐ second grade
- ☐ third grade
- ☐ special education
- ☐ principal
- ☐ supervisory

B. Teaching Experience

- ☐ practice teaching only
- ☐ no teaching experience
- ☐ one year of experience
- ☐ two or more years of experience

C. Years in my present school

- ☐ this is my first year
- ☐ one year in this school
- ☐ two or more years

D. My school is:

____
Name of School

Please do not sign your name.

You may recall filling out a survey similar to this one at the workshop last summer. We realize it is not easy to do such a ranking, and we thank you for your time and effort. Your rankings will help us to determine the successfulness of SAPA as a curriculum innovation.

You are asked to rank nine K-3 subject matter areas according to:

1. The amount of emphasis given to them in your present school
2. According to the amount of emphasis you personally feel should be given these subjects.
3. According to your perception of the degree to which K-3 students enjoy their subjects, etc.

Let "1" represent the subject accorded the most emphasis.
Let "2" represent the subject accorded the second greatest amount of emphasis.
Thus, "9" will represent the subject accorded the least emphasis.

Six different rankings should be made. Please do not discuss your rankings with other teachers.

Sample EV-5 (cont'd)

Curriculum Components Rankings

I. In my present school, I feel that curriculum emphasis has been placed as follows:

Let "1" = most emphasized subject

Let "9" = least emphasized subject

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Science

____ Social Studies

II. I personally feel that the nine subject areas should be ranked in the following order of emphasis:

Let "1" = subject that should have most emphasis

Let "9" = subject that should have least emphasis

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Science

____ Social Studies

Sample EV-5 (cont'd)

IV. In my present school, I perceive that K-3 graders enjoy subjects most as follows:

Let "1" = most enjoyed

Let "9" = least enjoyed

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Social Studies

____ Science

V. I personally enjoy teaching in the subject areas in the following order:

Let "1" = enjoy teaching this subject the most

Let "9" = enjoy teaching this subject the least

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Social Studies

____ Science

Sample EV-5 (cont'd)

VI. I perceive that these subjects are most appropriate for individual student initiative and small group activity as follows:

Let "1" = most appropriate

Let "9" = least appropriate

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Science

____ Social Studies

VII. In my present school, I feel that supervisory or consultant assistance has been most readily available according to the following ranking:

Let "1" = most assistance

Let "9" = least assistance

Rank Subject Area K-3

____ Art

____ Health & Safety

____ Language Arts (Reading excl.)

____ Mathematics

____ Music

____ Physical Education

____ Reading

____ Science

____ Social Studies

Sample EV-5 (cont'd)

CONTINUUM TYPE RESPONSES

VIII. K-3 teachers in the 19 ERIE pilot schools of Pennsylvania and New York vary in the degree of enthusiasm with which they look forward to teaching their second year of SAPA in 1968-69.

Please circle on the continuum below the point which best expresses your enthusiasm to continue teaching SAPA in your classroom during the 1968-69 year.

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

Would prefer not to teach SAPA to my particular class of children.	Very enthusiastic to teach another year of SAPA.

IX. There is a major debate today over the role of "process" in the education of elementary school students versus the role of "subject matter content." Arguments can be advanced for both sides of the issue.

Please circle on the continuum below the point which best expresses the degree of importance which you personally gave to "process in the elementary school program" prior to the August 1967 Ithaca workshop.

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

In August, I did not feel "process" is nearly as essential for elementary children as well-selected subject matter content.	In August, I felt that "process" is far more valuable for elementary children than well-selected subject matter content.

Sample EV-5 (cont'd)

X. Now that you have taught a "process" science curriculum (SAPA) for a year, what degree of importance do you attribute today to "process" in the elementary school curriculum?

Please circle the continuum below at the point which best expresses your present feelings on the degree of importance of a "process."

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

Today I still feel "process" is not nearly as essential for elementary children as well selected subject matter content.	Today I feel that "process" is far more valuable for elementary children than well selected subject matter content.

XI. State, local district, and local building conditions result in various schools teaching science (or any other subject) for varying amounts of time per day or per week.

Please circle the continuum below at the point which best indicates the average number of minutes you spent in teaching science per day last year (prior to SAPA). Of course, on some days it was not possible to teach science so please give an average amount of time per day as best you can remember.

Time Spent in Science Instruction Per Day in 1967-68.

0 10 20 30 40 50 60 70 80 90

10 minutes per day	90 minutes per day

Sample EV-5 (cont'd)

XII. Please circle the continuum below to indicate how much time per day you have spent this year (1967-68) teaching SAPA science. Of course, it was not possible to teach science every day this year either, so please given an average time per day.

Time Spent in Science Instruction Per Day in 1967-68.

0 10 20 30 40 50 60 70 80 90

10 minutes per day

90 minutes per day

XIII. There are certain problems inherent in the process of installing any new curriculum. Sometimes these problems are easy to resolve. Sometimes they are not. Equipment, costs, time, inservice training, teaching strategies, pupil acceptance, community attitudes are just a few examples of possible problem areas.

On the continuum below please circle the point that best indicates the degree to which you think all the problems associated with installing Science--A Process Approach in your school are resolvable by the teachers and principals in your building.

0 10 20 30 40 50 60 70 80 90 100

SAPA presents many problems that canNOT be solved by the faculty and principal of my school. The problems are too many and too serious.

All problems associated with SAPA installation in my school can be solved by the faculty and principal of my school. The problems are not too many and are not too serious.

Sample EV-5 (cont'd)

XIV. It is often said that school people are not enthusiastic to engage in data gathering activities or school building-based field research. ERIE realizes that questionnaires of this nature do take time and effort that could be devoted to other educational and/or personal pursuits.

On the continuum below please circle the point that best indicates the degree to which you are willing to engage in data collection for the purpose of analyzing the best methods of installing new curriculums in general and SAPA in particular.

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

I very strongly prefer not to be asked for any data relative to SAPA and SAPA installation.	I am willing to go along with a small amount of data collection.	I am very willing to supply any data needed to perfect better methods of installing new curriculums.

XV. What mistakes has ERIE made in its attempt to plan, organize, and administer a strategy for the installation of a new curriculum (SAPA)? Please suggest remedies.

____

____

____

____

____

____

____

____

____

SAMPLE EV-6

Name of School:______________________________

FORM "A" May 6, 1968

Consultants vary in personality, consulting approaches, and in effectiveness. The curricular needs of a particular school may require special consultant skills. Teachers vary in their evaluations of a consultant depending upon the needs of the school.

1. Please circle on the continuum below the point which best expresses your feeling about the quality of your ERIE consultant's performance during the 1967-68 school year. A circle around +10 would tend to indicate a "fair quality" performance. A circle around -40 would indicate "quite poor" performance. A "neutral" performance would be indicated by circling the "zero" point. Helpful or generally good quality performance should be indicated on the positive (right-hand half) of the continuum.

-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
Extremely Poor Performance						Neutral						Superb Performance

2. Last fall my expectations toward working with a science consultant were: (Mark the continuum below as per directions in #1.)

-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
Negative						Neutral						Positive

Sample EV-6 (cont'd)

3. My feelings about consultant service presently are:

-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
Negative						Neutral						Positive

4. This change, if any, has been influenced by ______________

____

5. To be more successful in a school like ours the consultant should:

____

____

> Please fill in the blanks below with frank and perceptive observations about your consultant. See example at bottom of page.

6. The consultant helped me ______________________________

7. The consultant communicates ___________________________

8. The first time the consultant visited my classroom ______

____

Where possible, use informative comments.

Example: The consultant often: readily cites books or articles that will answer my questions or supply background for lesson content. (Rather than less informative comments like The consultant often: answers my questions.)

Sample EV-6 (cont'd)

9. When I asked the consultant to teach my class ______________

____

10. The consultant spends most of his time ______________

11. When I ask the consultant to observe my class ______________

____

12. The consultant discourages ______________

13. The consultant and the principal ______________

14. The day the consultant is in the building ______________

____

15. The consultant rarely, if ever, ______________

16. The consultant does not need to ______________

17. The consultant shows favoritism to ______________

18. The consultant likes ______________

19. The consultant annoys ______________

20. The consultant views the curriculum ______________

____

Please circle the number that most closely describes how often the consultant does each of the nine things listed on this page.

Key

1. Rarely occurs
2. Sometimes occurs
3. Often occurs
4. Very frequently occurs

21. The consultant is well prepared when he visits our school 1 2 3 4

22. The consultant helps teachers to solve problems 1 2 3 4

Sample EV-6 (cont'd)

23. The consultant criticizes a specific act rather than a teacher. 1 2 3 4

24. The consultant talks a great deal. 1 2 3 4

25. The consultant explains his reasons for criticism to teachers. 1 2 3 4

26. Teachers talk about their personal life to the consultant. 1 2 3 4

27. The consultant asks teachers nonsensical questions. 1 2 3 4

28. The consultant goes out of his way to help teachers. 1 2 3 4

29. The consultant stays after school to help teachers. 1 2 3 4

30. Various resources are needed to successfully implement curriculum change. On the basis of your science teaching experience this year, rank the following resources from most effective (1) to the least effective (5):

Other teachers ____

The ERIE consultant ____

The building principal ____

The summer workshop ____

The Teacher's Manual ____

31. Some curriculum theorists feel that the skills acquired in *Science--A Process Approach* may relate to learning in other curricular areas. Do you think so? _____ yes _____ no

32. If yes, list in order the curricular areas in which you think process skills relate to learning (art, music, reading, math, social studies, spelling, language arts).

________________________ (Most related)

____

____

____

____

____

________________________ (Least related)

Sample EV-6 (cont'd)

There is a developing debate among curriculum theorists regarding the process approach to learning. This debate often takes the form of "process vs. content." Mr. Lee Brown, a curriculum developer, recently made the following remarks in an address:

> What are some of the possible implications of our inability to predict what knowledge will be most useful in the year 2000? Clearly one implication is that we might do well to minimize the amount of knowledge we teach children and concentrate instead on the processes of learning, which have proved remarkably stable over the past 25 years when knowledge has been proliferating and changing so rapidly.

33. On the basis of your experience and values, how would you respond to Mr. Brown's comments if you were asked to be on a panel as a reactor? (Use the space below and back of sheet if necessary.)

SAMPLE EV-7

Name of School: ____________________

FORM "B" May 6, 1968

Innovative programs such as Science--A Process Approach vary in value, in meaningfulness to children, in time demands, in ease of teaching, and in general appropriateness for a teacher and her particular classroom of children.

1. Please circle on the continuum below the point which best expresses your feeling about the worthwhileness of SAPA as an innovation for you and your classroom of pupils. A circle around +50 would tend to indicate that you feel SAPA is a very worthy innovation for your room. A circle placed on -10 would tend to indicate you feel SAPA is not very appropriate for your room. Favorable feelings about the worthwhileness of SAPA should be indicated on the positive (right-hand half) of the continuum.

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

An Extremely Inappropriate Innovation — Neutral — Extremely Worthwhile Innovation

2. When I left the Teacher Training Workshop, my attitude toward being involved in this innovation program was:

-60 -50 -40 -30 -20 -10 0 +10 +20 +30 +40 +50 +60

Negative — Neutral — Positive

Sample EV-7 (cont'd)

3. My attitude toward the innovative program presently is:

-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
Negative						Neutral						Positive

4. This change, if any, has been influenced by ____________

____

____

Please fill in blanks below with frank and perceptive observations about your consultant. See example at bottom of page.

5. The consultant is most helpful when ____________________

____

6. The consultant talks ____________________________

7. When I present a problem to the consultant ____________

____

8. The consultant encourages ________________________

9. The consultant becomes annoyed if ___________________

Where possible, use informative comments.

Example: The consultant often: readily cites books or articles that will answer my questions or supply background for lesson content. (Rather than less informative comments like The consultant often: answers my questions.)

Sample EV-7 (cont'd)

10. By Christmas my relationship with the consultant ______

____

11. The consultant goes out of his way to ______________

12. The consultant views children ______________________

13. When I asked for help with materials ______________

____

14. The consultant is negative toward ________________

15. The consultant promotes __________________________

16. The consultant arrives at the building ____________

17. The day the consultant is in the building __________

____

18. The consultant is proud of ______________________

19. The consultant worries about ____________________

20. The main problem with consultants ________________

____

Please circle the number that most closely describes how often the consultant does each of the nine things listed on this page.

Key

1. Rarely occurs
2. Sometimes occurs
3. Often occurs
4. Very frequently occurs

21. The consultant is in the building at an appropriate time.	1 2 3 4
22. The consultant asks teachers nonsensical questions.	1 2 3 4

Sample EV-7 (cont'd)

23. The consultant rambles when he talks with teachers. 1 2 3 4

24. The consultant sets an example by working hard himself. 1 2 3 4

25. The consultant uses constructive criticism. 1 2 3 4

26. The consultant socializes with teachers. 1 2 3 4

27. Teachers are contacted by the consultant each day if it is possible to do so. 1 2 3 4

28. The consultant encourages teachers to work to their full capacity. 1 2 3 4

29. The consultant clarifies wrong ideas a teacher may have. 1 2 3 4

30. Before this program, or any other curricular innovation can really succeed in this school, certain changes must take place. I feel that the most important changes are:

____

____

____

31. I feel that the Teacher's Manual ____________________

____

____

32. I feel that the Teacher's commentary ________________

____

____

____

Sample EV-7 (cont'd)

There is a developing debate among curriculum theorists regarding the process approach to learning. This debate often takes the form of "process vs. content." Mr. Lee Brown, a curriculum developer, recently made the following remarks in an address:

> What are some of the possible implications of our inability to predict what knowledge will be most useful in the year 2000? Clearly one implication is that we might do well to minimize the amount of knowledge we teach children and concentrate instead on the processes of learning, which have proved remarkably stable over the past 25 years when knowledge has been proliferating and changing so rapidly.

33. On the basis of your experience and values, how would you respond to Mr. Brown's comments if you were asked to be on a panel as a reactor? (Use the space below and back of sheet if necessary.)

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After reading this section, the reader should be able to

1. NAME certain literature relevant to workshops, educational objectives, and inquiry-oriented teaching.

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